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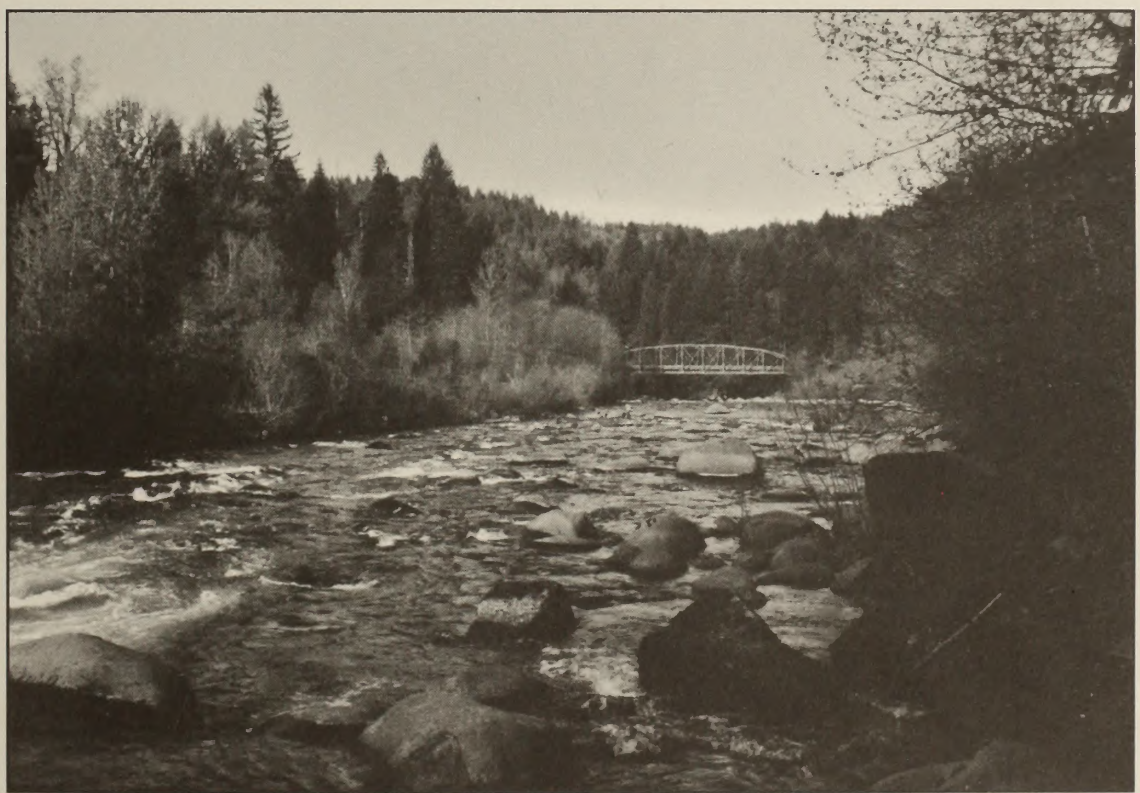
July 1992

Sandy Wild and Scenic River and State Scenic Waterway Management Plan Environmental Assessment



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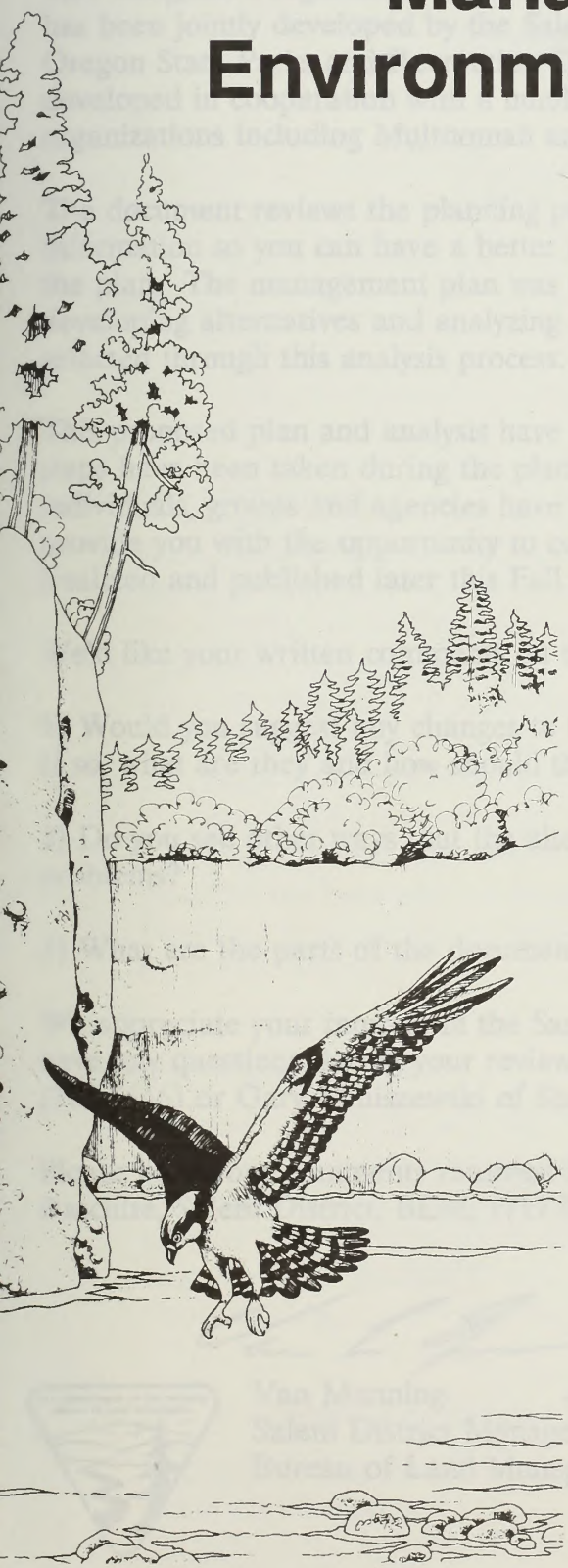
Sandy Wild and Scenic River and State Scenic Waterway Management Plan Environmental Assessment



A Cooperative River Management Planning Document
Developed by
USDI
Bureau of Land Management
Salem District
Clackamas Resource Area

In Cooperation With
Oregon State Parks and Recreation Department
Clackamas County
Multnomah County

Prepared By: **Robert Ratcliffe**
Edited By: **Michelle M. Leger**

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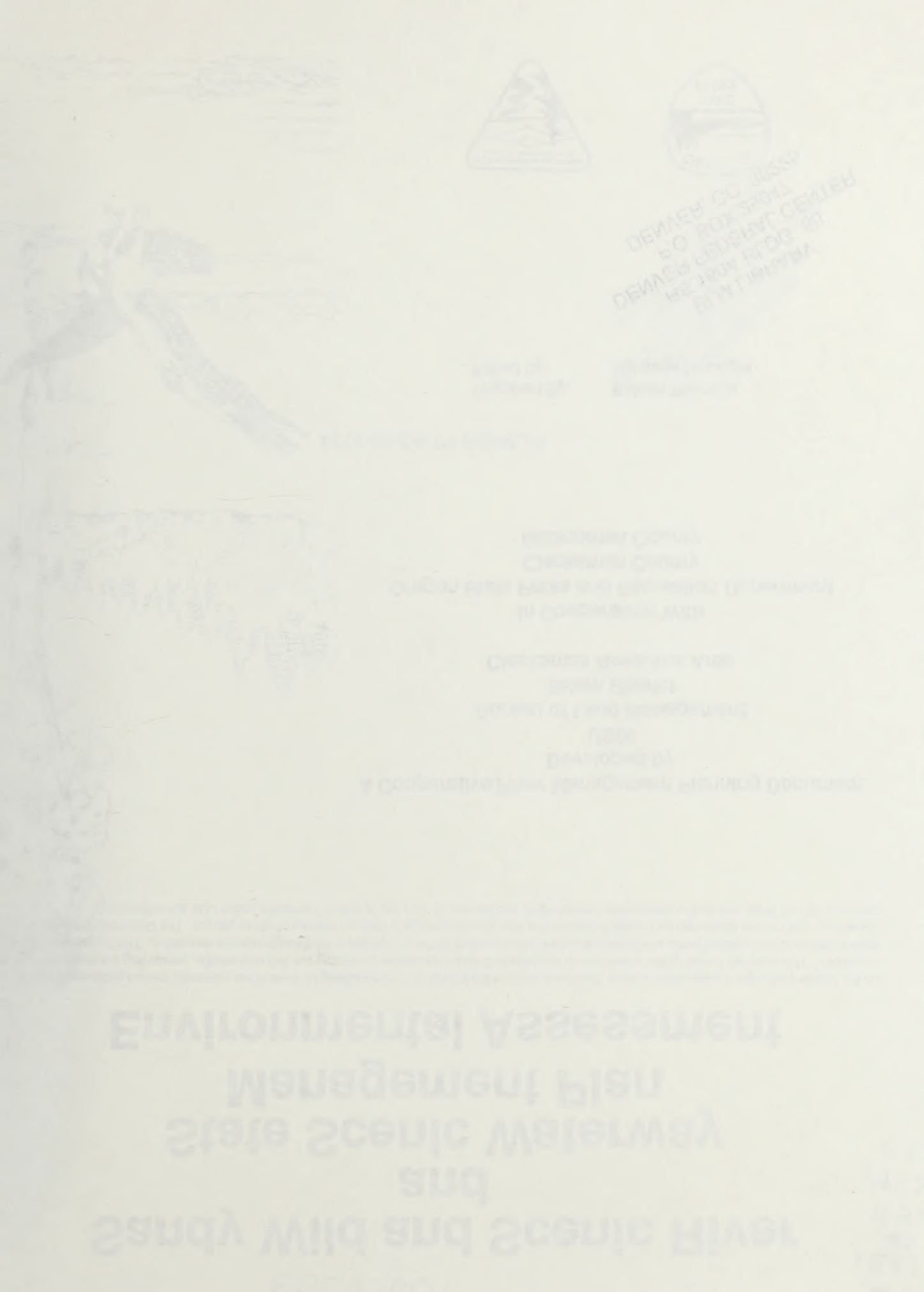

July 4, 1992

Dear Reviewer,

Enclosed for your review and comment is a copy of the environmental assessment (EA) for the **Sandy Wild and Scenic River and State Scenic Waterway Management Plan.** The EA assesses the environmental effects and consequences of four alternative strategies for managing the 12.5 mile designated segment of the river from Dodge Park to Dabney State Park. The document has been jointly developed by the Salem District of the Bureau of Land Management and the Oregon State Parks and Recreation Department. The EA and proposed management plan was developed in cooperation with a number of other federal, state, and local agencies and private organizations including Multnomah and Clackamas Counties.

The document reviews the planning process, issues, public involvement and other background information so you can have a better understanding of what has gone into the development of the plan. The management plan was completed after analyzing the resources, identifying issues, developing alternatives and analyzing effects. The proposed alternative (Alternative D) was selected through this analysis process.

This proposed plan and analysis have taken about 2 years to develop. Along the way, numerous steps have been taken during the planning stages to insure that the viewpoints of interested individuals, groups and agencies have been considered. We feel it is once again important to provide you with the opportunity to comment before the detailed implementation plan is finalized and published later this Fall.

We'd like your written comments on the following:

1) Would you suggest any changes to the proposed management plan (preferred alternative D)? If so, what are they and how should they be worded?

2) Do you see other ways that the alternatives could be built or combined to resolve issues or problems?

3) What are the parts of the document that you like and prefer not to see changed?

We appreciate your interest in the Sandy River and look forward to hearing from you. If you have any questions during your review please contact Bob Ratcliffe of the Salem District BLM (375-5646) or Gary Miniszewski of State Parks and Recreation (378-6378).

Please have your comments returned by September 1st, 1992. They can be mailed to: Bob Ratcliffe, Salem District, BLM, 1717 Fabry Road S.E., Salem , OR. 97306. Thank you.

Van Manning
Salem District Manager
Bureau of Land Management

David G. Talbot
Director
Oregon State Parks

Environmental Assessment
Sandy Wild and Scenic River
and
State Scenic Waterway

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Summary

Summary

The lower Sandy River was designated a National Wild and Scenic River by the Omnibus Oregon Wild and Scenic Rivers Act of 1988. This act directs the Bureau of Land Management (BLM) to develop a river management plan for the lower Sandy River in coordination with state and local counties.

This document was created by the Salem District office of the Bureau of Land Management to establish a comprehensive management plan for the lower Sandy River. The intent of the Wild and Scenic Rivers Act and the primary goal of the plan is to maintain the free-flowing character of the river and protect the important values of the river. The plan will provide general guidance and direction for future management actions and decisions concerning the lower Sandy.

Purpose and Need

By designating the lower portion of the Sandy a National Wild and Scenic River, Congress directed the Department of Interior through the Bureau of Land Management to work cooperatively with the Oregon State Park and Recreation Department and Clackamas and Multnomah Counties to develop a joint river management plan for the designated river segment within three years of designation. The Sandy River Management Plan will provide general direction and guidance for the protection, restoration and enhancement of resource values within the river corridor and accommodate public uses consistent with the Wild and Scenic Rivers Act.

The purpose of this document, the Environmental Assessment (EA), is to provide a basis for comparing alternative management scenarios for the designated 12.5 miles of the Sandy River. The EA represents the first step in selecting which alternative should become the final river management plan. The management alternatives were developed in a coordinated effort with many Federal, State and local agencies as well as concerned publics, landowners and organizations. Each management alternative details specific management direction and resource monitoring emphasis, provides various actions to protect the river's values, and establishes management boundaries.

Organization of this document

This document is presented in four chapters:

Chapter I provides background on the environmental assessment, management planning process, the Wild and Scenic Rivers Act, relationship of the plan to other jurisdictions and authorities, the boundary delineation process and outstanding resource values within the river corridor.

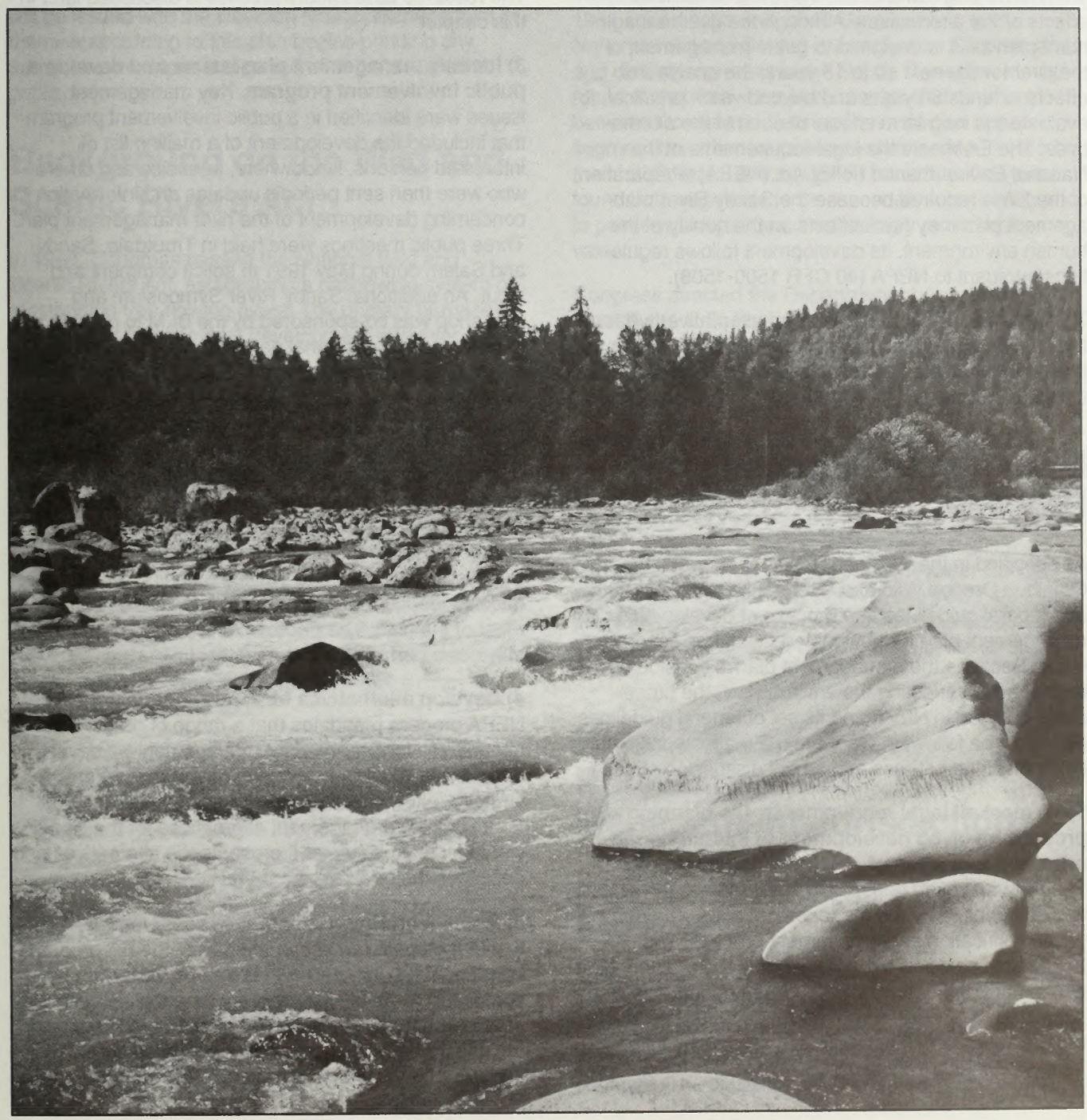
Chapter II describes the key river planning issues that formed the basis for developing management alternatives. It discusses the ways the public was involved in developing issues and management alternatives. Most importantly, this section also describes in detail the four management plan alternatives that were developed and evaluated in the environmental assessment.

Chapter III describes the affected environment—the physical, biological, social and economic resources of the Sandy River gorge and vicinity.

Chapter IV assesses the impacts of each alternative on the resources described in Chapter III.

References and papers used to prepare this document are provided in **References and Bibliography**. A **Glossary** of terms is also included. **Appendix A** excerpts the Oregon Administrative Rules' State Scenic Waterway law and outlines state forest practices. **Appendix B** contains county zoning regulations for Multnomah and Clackamas counties. A list of all species found to inhabit the Sandy River Gorge are listed under **Appendix C**. A list of agencies and organizations who participated in the Sandy River planning is found in **Appendix D. Appendix E** lists acronyms used throughout the document. A list of those who prepared this document is provided in **Appendix F**.

Chapter I
Introduction



Environmental Assessment and Decision Notice

The Environmental Assessment describes the planning process and presents four alternative strategies (plans) for managing the river. The EA also documents environmental effects of each of the four alternatives. The EA has two main functions, both equally important: 1) it provides the responsible officials with sufficient information to select an alternative for the river management plan, and 2) the EA makes this information and analysis available to the public. The EA analyzes short-term, long-term, direct, indirect and cumulative effects of the alternatives. Although the river management plan itself is designed to guide management of the river for the next 10 to 15 years, the analysis of effects extends 50 years and beyond when practical, to evaluate the long-term effects of each of the alternatives. The EA meets the legal requirements of the National Environmental Policy Act (NEPA). Preparation of the EA is required because the Sandy River management plan may have effects on the quality of the human environment. Its development follows regulations pursuant to NEPA (40 CFR 1500-1508).

The alternative selected (preferred alternative) will form the final management plan and be fully described in an implementation plan attachment with publication of the Decision Notice.

Management Planning Process

As specified in the Wild and Scenic Rivers Act, the Omnibus Oregon Wild and Scenic Rivers Act of 1988 and federal guidelines, the process of developing a management plan for designated rivers has several steps. Because the management plan is considered a federal action affecting the environment, the procedures outlined in NEPA and its set of federal guidelines also must be followed. Here are the main steps taken in the planning process and a brief discussion of each.

1) To meet all legal requirements, the planning process involved development of interim boundaries and formation of a river management plan. The BLM identified preliminary boundaries—the area to be influenced by the management plan—through a public notification and involvement process. The boundaries selected are 1/4 mile from the ordinary high water mark of the river. These interim boundaries were submitted to Congress in September 1990. The BLM organized a team of resource specialists and initiated an interagency planning group.

2) Identify outstanding resources in the river corridor. Congress did not identify, develop or analyze all outstandingly remarkable river values to be considered in river management. The BLM conducted a Resource Assessment to determine the relative significance of certain river values. A draft resource assessment was prepared by March of 1991 and subsequently reviewed by over 80 agencies and resource experts. The final findings were completed by the fall of 1991, incorporating changes and corrections provided by the reviewers. This determination helps focus management priorities and provides detailed information on which to base the management plan. The resource assessment process is discussed later in this chapter.

3) Identify management plan issues and develop a public involvement program. Key management issues were identified in a public involvement program that included the development of a mailing list of interested persons, landowners, agencies and others who were then sent periodic updates and information concerning development of the river management plan. Three public meetings were held in Troutdale, Sandy and Salem during May 1991 to solicit comment and input. An additional Sandy River Symposium and workshop was co-sponsored by the BLM to provide a forum to gather additional data and public comment concerning river management. Other formal and informal meetings and briefings were held throughout the planning process with interest groups, local communities, agencies, and county commissioners and congressional staff and representatives. An interagency planning group, representing key resource agencies and organizations with direct authority and jurisdiction along the designated segment of the Sandy, was organized to provide planning recommendations, identify issues and help guide the development of the plan. The public involvement program is fully described later in this chapter.

4) Develop alternatives for river management. The NEPA process mandates that a range of reasonable alternatives for river corridor management be developed and evaluated before any one management strategy (alternative) is selected and implemented. Four possible management alternatives for the Sandy were identified. Chapter II presents the alternatives and describes their development.

5) Prepare an Environmental Assessment (EA). The first four steps listed above are part of the EA preparation. The data gathered in these steps must then be compiled into an assessment document along with several other key items. These include a discussion of the affected environment, a thorough analysis of the impacts of each management alternative on the

affected environment and other information necessary so that agencies, landowners, recreationists and others may make informed comments regarding their preferences.

6) Prepare a Decision Notice and final river management implementation plan. Based on public input, management concerns and consensus from the congressionally mandated cooperating agencies (State of Oregon, Multnomah County and Clackamas County), the BLM will select one of the alternatives—perhaps with some modification—to become the final management plan. The management plan, providing additional detail, costs and implementation schedules, will be issued with the Decision Notice. Management of the river according to this plan begins pending any administrative appeals received after the decision is published.

Background on the Wild and Scenic Rivers Act

In 1968, Congress passed the National Wild and Scenic Rivers Act, establishing a nationwide system of outstanding free-flowing rivers. The primary purpose of the Act is to balance river development with river protection.

> *The Congress declares that the established national policy of dam and other construction...needs to be complemented by a policy that would preserve other selected rivers or sections thereof in their free-flowing condition to protect the water quality of such rivers and to fulfill other vital national conservation purposes.*

The act specifically protects rivers from future hydropower development and impoundments. The Act also provides for the protection of river values for each river in the system through the development of a river management plan.

> *It is hereby declared to be the policy of the United States that certain selected rivers of the Nation which, with their immediate environments, possess outstandingly remarkable scenic, recreational, geologic, fish and wildlife, historic, cultural or other similar values, shall be preserved in free-flowing condition, and...shall be protected for the benefit and enjoyment of present and future generations.*

By the end of 1991, nearly 10,000 miles of rivers on 127 river segments had been added to the Wild and Scenic Rivers system. Designation as a Wild and Scenic river does not mean that the river corridor, which generally includes the land within about 1/4 mile on either side of the river is managed like a National Park or Wilderness area. Rather, the management goal is to maintain the character of the river in its current state and to protect and/or enhance specific resource values. Existing resource uses may continue—including timber harvest, agriculture and grazing, residential occupancy, and recreation—while new uses generally are allowed as long as they do not adversely affect river corridor resources.

Legislation and Guidance

The Omnibus Oregon Wild and Scenic Rivers Act of 1988 added segments of 40 Oregon rivers to the National Wild and Scenic Rivers System. Two separate and distinct segments of the Sandy River were designated at that time—the lower designated segment between Dodge and Dabney Parks and an upper segment from the river's headwaters on Mount Hood to the U.S. Forest Service (USFS) boundary. Congress found both segments to be essentially free-flowing and to possess at least one outstandingly remarkable value.

Congress directed the Department of Agriculture, through the U.S. Forest Service (USFS) to develop a separate management plan for the river's upper portion, from its headwaters to the Mt. Hood National Forest Boundary.

In addition, the federally designated segment of the lower Sandy River from Dodge Park (River Mile 18.5) to Dabney State Park (RM 6), commonly called the Sandy River Gorge, was the first river in Oregon to be designated a State Scenic Waterway by a governor. Governor Tom McCall proclaimed the lower Sandy River a Scenic Waterway in 1972, two years after the program began. Further discussion of the State Scenic Waterway classification can be found in the following section.

River Classification, Boundaries and Management Jurisdiction

Federal Wild and Scenic River Classification

Segments of rivers designated as components of the Wild and Scenic River System are classified by Congress into one of three categories depending on the extent of development and access along each segment. The classification terms *Wild, Scenic* and

Recreational refer to the degree of access or development that exists along the river area at the time of designation. The classifications are used as general guidelines for use in river management. The different classifications allow for a wide range of the kinds of rivers, from primitive to highly developed, which can be included as components of the system.

Rivers or river segments classified as *Wild* are generally inaccessible except by trail, and are essentially primitive in character. *Scenic* rivers are largely primitive and undeveloped, but accessible in places by roads and may have some residential development and resource activities such as agriculture or timber harvest occurring within the corridor. *Recreational* rivers are readily accessible by road or railroad and have a greater degree of development along their shorelines. These terms can be misleading. For example, a Recreational river may have been designated for reasons other than recreation, and the primary values of a Scenic river may not necessarily be scenery.

The entire designated segment of the Sandy is free-flowing and has no impoundments or major diversions along its course. The shoreline throughout the designated segment is in a natural condition.

Based on the existing level of corridor development and the natural condition of the shoreline, Congress has determined that the 12.5-mile lower Sandy River designated reach be divided into two classified segments:

> ***Segment 1.*** *The upper 3.8 miles, from the east boundary of sections 25 and 36, township 1 south, range 4 east in Clackamas County near Dodge Park to the north boundary of section 23, township 1 south, range 4 east, in Multnomah County (downstream of Indian John Island) as a* ***Scenic River.***
>
> ***Segment 2.*** *The lower 8.7 miles, from the north boundary of section 23, township 1 south, range 4 east, (downstream of Indian John Island) to the west line of the east half of the northeast quarter of section 6, township 1 south, range 4 east, in Multnomah County at Dabney State Park as a* ***Recreational River.***

State Scenic Waterway Management Classification

The 12.5-mile stretch of the Sandy (Dodge Park to Dabney Park) designated as a federal Wild and Scenic River is also a State Scenic Waterway. A State Scenic Waterway is a river, or river segment, that has been designated by the Oregon legislature, by Governor's Declaration, or by voter referendum as a Scenic Waterway under the provisions of the Oregon Scenic Waterways Act of 1969. Due to the lower Sandy's designation as a State Scenic Waterway, state administrative rules have also been adopted for management of the Sandy River. (See Appendix A). The river was classified into two segments, similar to the federal classifications. The upper 3.8-mile portion, from Dodge Park to Indian John Island, is classified as a **Natural River Area**. The lower 8.7 miles, from Indian John Island to Dabney State Park is classified as a **Scenic River Area**.

As contained in the **State Scenic Waterway Program: A Landowners Guide**, these classifications are defined as follows:

Natural River Area

> *A Natural River Area is undeveloped, and generally in pristine or near pristine condition. It is accessible only by trail, boat or airplane. While the landscape of a Natural River Area can vary from steep-walled canyons to forested foothill, its character is consistent - primitive, very scenic, conveying a sense of solitude. Human use in a Natural River Area is usually limited; any structures or indication of settlement is rare or scattered.*
>
> ***Management Goal:*** *Because a Natural River Area is undeveloped, any change has great potential to affect its natural beauty. A Natural River Area is managed to preserve and protect the scenic waterway corridor in its primitive natural condition. This means that stringent standards for concealing all activities compatible with a primitive setting and with very low visual impact are allowed.*
>
> ***Conditions for Use:*** *The natural, primitive character of a Natural River Area is its dominant feature. To assure adequate protection within the corridor: All new structures and development must be completely hidden (screened) from the river, usually by topography (landform); Approved public recreation facilities and natural resource protection measures (e.g., stream bank protection) may be visible from the river if their appearance blends into the natural landscape.*

Scenic River Area

> *A Scenic River Area is for the most part undeveloped and natural appearing in character. Agriculture and grazing may be dominant land uses. Roads through a Scenic River Area are generally lightly travelled and not easily seen from the scenic waterway. A typical Scenic River Area could be cropland surrounded by forest or open rangeland.*

Management goal: *A Scenic River Area is managed to protect the scenic quality created by the combination of agricultural and natural features. Undeveloped areas are maintained, agriculture is encouraged, and recreation activities compatible with existing land uses are allowed.*

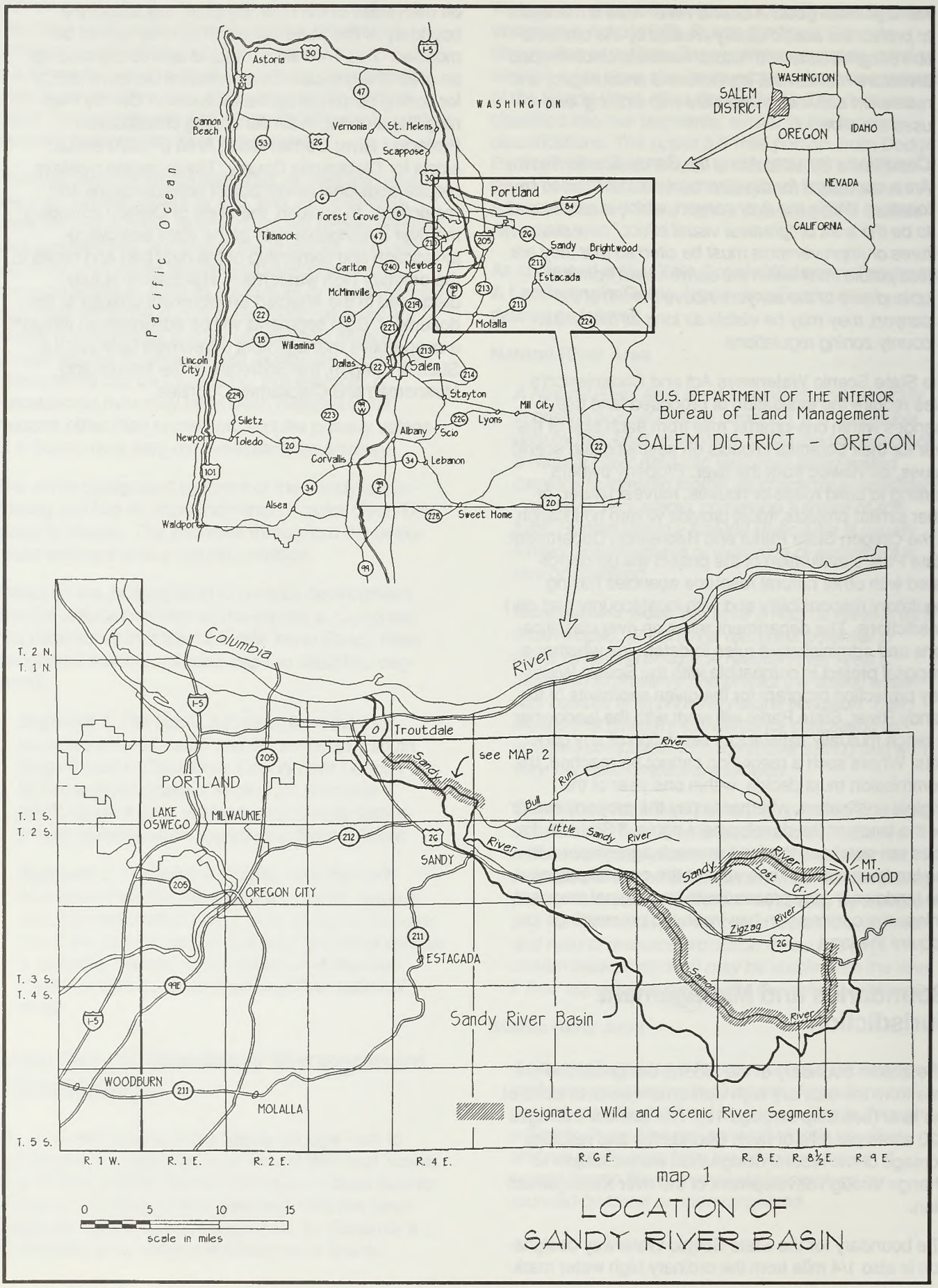
Conditions for use: *Along the Sandy Scenic River Area, conditions for development are determined by location. Within the river canyon, which is considered to be the area of "greatest visual effect," new structures or improvements must be sited so that they are less visible from within the canyon than from the upland side of the canyon. Above the rim of the canyon, they may be visible as long as they meet county zoning regulations.*

The State Scenic Waterways Act and Commission's rules require the evaluation of proposed land use changes within one-quarter mile from each side of the river for their potential impacts on aesthetic and scenic values, as viewed from the river. Property owners wanting to build roads or houses, harvest timber, or other similar projects, must provide written notification to the Oregon State Parks and Recreation Department. State Park's evaluation of the project will be coordinated with other natural resource agencies having regulatory responsibility and with local (county and city) jurisdictions. The department relies on river classifications and administrative rules to determine whether a proposal project is compatible with the Scenic Waterway protection program for the given segments of the Sandy River. State Parks will work with the landowner to reach mutually satisfactory resolution of any conflicts. Where such a resolution cannot be reached, the Commission must decide, within one year of the original notification, whether to pay the property owner for the lands or the development rights. If State Parks does not purchase the land or reach agreement with the landowner within one year of the original proposal, the landowner may proceed with the original proposal, unless the commission has instituted proceedings to acquire the land.

Boundaries and Management Jurisdiction

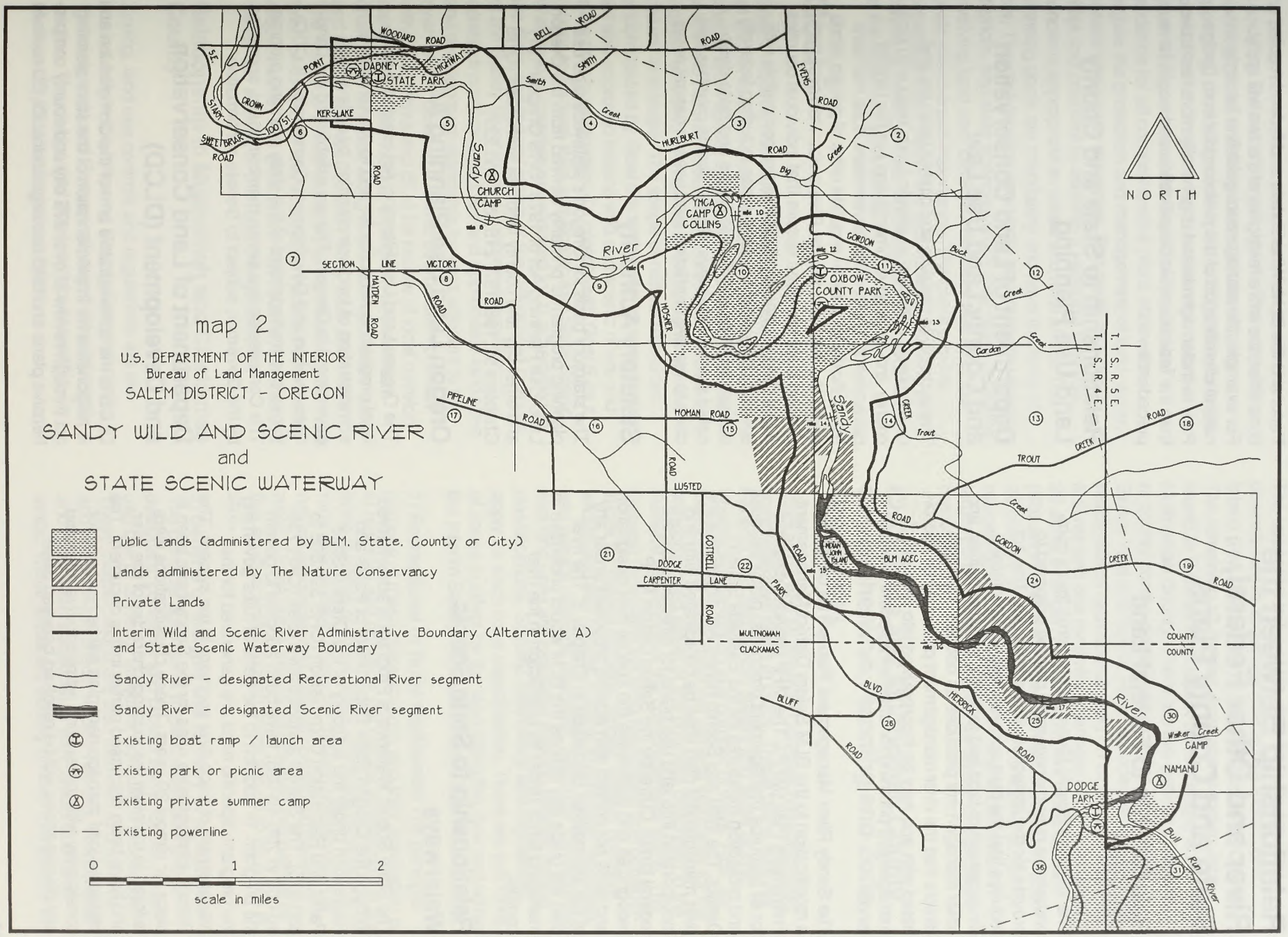
The interim boundary of the federal designation is 1/4 mile from the ordinary high water mark on both sides of the river (see map on page 10). The corridor averages 320 acres per mile of river. Boundaries and resulting acreage of the federal designation will be subject to change through development of the river management plan.

The boundary for the State Scenic Waterway designation is also 1/4 mile from the ordinary high water mark on both sides of the river. By State regulation, the boundary of the State Scenic Waterway cannot be modified. This 1/4-mile corridor is also recognized as an area of Significant Environmental Concern (SEC) for zoning purposes by the Multnomah County Planning Department. A similar zoning classification, Protected River Conservation Area (PRCA) status, exists for Clackamas County. These zoning overlays require additional development considerations and restrictions. In addition, the State of Oregon considers the river a navigable river of the state and claims jurisdiction and ownership of the river bed and banks to the ordinary high water mark. Navigability is fully discussed in the Affected Environment chapter of this document. Both segments will be administered through a cooperative management agreement between the State of Oregon, the Secretary of the Interior and Multnomah and Clackamas Counties.



map 1

LOCATION OF
SANDY RIVER BASIN


map 2
U.S. DEPARTMENT OF THE INTERIOR
Bureau of Land Management
SALEM DISTRICT - OREGON
SANDY WILD AND SCENIC RIVER
and
STATE SCENIC WATERWAY
Public Lands (administered by BLM, State, County or City)
Lands administered by The Nature Conservancy
Private Lands
Interim Wild and Scenic River Administrative Boundary (Alternative A) and State Scenic Waterway Boundary
Sandy River - designated Recreational River segment
Sandy River - designated Scenic River segment
Existing boat ramp / launch area
Existing park or picnic area
Existing private summer camp
Existing powerline
0 1 2
scale in miles
NORTH
DABNEY STATE PARK
CHURCH CAMP
YMCA CAMP COLLINS
OXBOW COUNTY PARK
BLM ACEC
NAMANU
DODGE PARK
WOODARD ROAD
BELL ROAD
SMITH ROAD
EVENS ROAD
KERSLAKE ROAD
SWEETBRIAR ROAD
HURLBURT ROAD
SECTION LINE ROAD
VICTORY ROAD
HATDEN ROAD
MOSNER ROAD
PIPELINE ROAD
HOMAN ROAD
LUSTED ROAD
DODGE PARK ROAD
CARPENTER LANE
COTTRELL ROAD
BLUFF ROAD
HERDRICK BLVD
GORDON CREEK ROAD
TROUT CREEK ROAD
MULTNOMAH COUNTY
CLACKAMAS COUNTY
Sandy River
Big Creek
Buck Creek
Gordon Creek
Trout Creek
Walker Creek
Bull Run River
T. 1 S., R. 4 E.
T. 1 S., R. 5 E.

Relationship Between the River and Other Federal, State and County Plans

Relationship to Federal Land Planning

The Wild and Scenic Rivers Act requires that a comprehensive river management plan be prepared to provide for the protection of rivers' values. The Act requires that the plan address resource protection, development of land and facilities, user capacities, and other management practices as needed. The Act directs that the river management plan shall be coordinated with and may be incorporated into resource management planning for affected adjacent federal lands.

The Sandy River Management Plan will be considered a modification to the BLM Salem District Management Framework Plan (MFP). The MFP provides direction for all resource management programs, practices, uses and protection measures for the Eastside Salem District. The Wild and Scenic Rivers Act directs that the river management plan shall be coordinated with and incorporated into land use plans for affected adjacent federal lands. Currently the Salem District MFP recognizes and addresses the special river designation and does not conflict with actions proposed under any of the alternatives discussed in Chapter 3. The river plan will guide any actions the BLM would undertake in managing lands under its jurisdiction in the river corridor.

Relationship to State Scenic Waterways

The State Scenic Waterways Program is administered through the Oregon State Department of Parks and Recreation under the authority of the Oregon State Parks and Recreation Commission (ORS 390.805 to 390.925). The State's administrative rules (OAR 736-40-005 to 736-40-095) have been adopted to govern the program. In addition to the general rules governing the program, specific rules are generated for the management of each river segment in the system. The State's administrative rules for the Sandy have been in place for almost 20 years. These classifications were tailored to maintain the existing character of the river and have been discussed earlier in this document. The proposed joint management plan will be reviewed for consistency with the existing administrative rules and any discrepancies will be resolved between State Parks and the BLM. Where state and federal regulations differ, the more restrictive of the two will apply. For example, the management guideline for state natural classification of the river corridor from Dodge Park to Indian John Island is generally more restrictive than the federal scenic classification and would have precedence.

Relationship to State and County Land Use Planning

Department of Land Conservation and County Land Use Law

The authority to regulate and control land use and development activities on private lands rests with local, county and state governments and not the federal government. The federal government does not have the authority to zone or regulate uses of private lands under the Wild and Scenic Rivers Act. However, Oregon state law does require that individual counties adopt comprehensive plans that are compatible with specially designated natural areas including federally designated Wild and Scenic Rivers and state-designated scenic waterways. Goal 5 directs counties and cities to resolve conflicting land uses in natural areas.

Statutory Authority

The statutory basis for Oregon's statewide land use planning program is primarily derived from the Oregon Land Use Planning Act of 1973 (ORS Chapter 197) and other city and county land use authorities (ORS Chapters 92,196, 197, 215, 221 and 227).

Oregon Land Use Planning Act

The Oregon Land Use Planning Act created a state-level program to set policy for and to coordinate the administration of land use planning by all levels of government in Oregon. The act established the Land Conservation and Development Commission (LCDC) to oversee management of the state planning program. The Commission is a seven-member board, appointed by the Governor, subject to Senate confirmation.

Department of Land Conservation and Development (DLCD)

DLCD is the administrative arm of the Commission and is responsible for implementation of the state planning act through review of over 275 city and county comprehensive plans and land use regulations. DLCD reviews

the plans for consistency and compliance with the mandatory statewide planning goals. The statewide planning goals, and the process for developing, approving, amending and implementing them, form the foundation for Oregon's land use management program. The goals establish important procedural guidance for all comprehensive plans statewide, require the protection and management of land, water, coastal and ocean resources. The goals also direct cities and counties to address a variety of land use concerns appropriate to urban and rural areas. The planning goals are mandatory and have the force of law. They are binding upon local governments, special districts, and state agencies when they make decisions involving land use. ORS 197 declares that all of the goals are of equal importance. The goals provide prescriptive and instructive guidance for carrying out planning, management, and regulatory responsibilities at the state and local levels.

Goal 5

Goal 5 requires cities and counties to adopt programs as elements of their comprehensive plans that will 1) ensure open space; 2) protect scenic and historical areas and natural resources; 3) promote health and visually attractive environments in harmony with the natural landscape. The scope of natural resources encompassed by Goal 5 is broad and includes potential and approved federal wild and scenic rivers and state scenic waterways. To comply with Goal 5 as it relates to Federal Wild and Scenic and State Scenic Waterways, counties are required to: 1) acknowledge the state and federal status of the designated portions of the Sandy River in the Comprehensive Plan; 2) establish protective policies and appropriate land uses and development standards for land adjacent to the river; and 3) develop a formal coordination process with State Parks and BLM for review of local development. This would include a program to coordinate changes in land use along rivers with applicable state and federal agencies (State Parks, BLM and USFS). The resource values identified in the inventory will have to be protected by mandatory plan policies and zoning requirements. The SEC and PRCA overlays discussed earlier are a result of the Goal 5 requirements.

Relationship to Multnomah and Clackamas County

Zoning, land use controls and regulations are discussed fully in the following County Comprehensive Planning and Land Conservation and Development section. The designated river corridor lies within Multnomah and Clackamas counties.

The upper two miles of the river from Dodge Park downstream to about one mile above Indian John Island (RM 18.6 to RM 16.5) is in Clackamas County. The remaining 10.5 miles, from above Indian John Island to Dabney Park (Stark Street Bridge) is in Multnomah County. There are two general categories of county zoning classifications within the interim Sandy Wild and Scenic River boundaries, one for rural residential or recreational uses on lot sizes of less than 5 acres and one for timber management on parcels of 20 acres or larger. About 15 percent of the corridor (520 acres) lies within Clackamas County. Only about 10 percent of the land within the corridor is zoned for residential use. The majority of land is contained in larger parcels that are zoned for timber or agriculture resource uses.

Clackamas and Multnomah County Comprehensive Planning and Zone Ordinances

Clackamas and Multnomah Counties have approved comprehensive plans in place. These plans address Federal Wild and Scenic Rivers and State Scenic Waterways protection in a number of ways. First, all development must meet the general standards for the unincorporated areas of the counties described in the General Provisions of the comprehensive plans. The General Provisions set forth restrictions and considerations for natural hazards, slopes, stream corridors, wildlife and fish habitat, cultural and historic resources and natural drainage channels. Secondly, development and land uses are regulated through specific zoning classifications. Specific restrictions and regulations apply for each zone classification. There are two kinds of zones in effect for the land along the river and within the interim Sandy Wild and Scenic River boundaries:

1) **Recreational or Rural Residential** The principle purpose of these classifications and their application is to maintain and enhance the natural environmental and living qualities of those areas which are recreational or rural residential in character through conservation of natural resources and carefully controlled development. These areas are usually divided into parcels of five acres or less although some are up to 20 acres in size.

2) **General or multiple use forestry or agriculture** The principle purpose of these classifications is to designate, conserve and protect areas for the continued use of lands for timber or agriculture production. These classifications are also intended to conserve and protect watersheds, wildlife habitats, recreational and other values associated with forests and farmlands. These areas are usually divided into parcels of

20 acres or greater in size. Oregon state forest practices law supersedes county zoning regarding timer harvest on these lands.

By February 1993, both Clackamas County and Multnomah County expect to have amended their zoning regulations on forest lands to require an eighty-acre minimum parcel size and enact a drastic reduction in permitted non-forest-related land uses. The changes will be in compliance with the revised Oregon Administrative Rule (OAR 660, Division 6) for Statewide Planning Goal 4, Forest Lands. In addition, any development within 1/4 mile of the Sandy River within Clackamas County must also meet Principle River Conservation Area (PRCA-Clackamas County) requirements. This overlay zoning places restrictions (in addition to State Scenic Waterway rules) on the type of development that can occur near the river and provides specific guidelines to minimize or eliminate impacts to the river's natural and aesthetic resources. The purpose of the PRCA and SEC zoning is to maintain the integrity of the rivers by minimizing erosion, promoting bank stability, maintaining and enhancing water quality and fish and wildlife habitats, and preserving scenic quality and recreation potentials. (See Appendix B). These zones set standards for development setbacks, size and color of structures, and parameters for soil, slope and vegetation factors. Development proposals on lands within these zones are forwarded to the State Scenic Waterways enforcement division for their review and approval. Also, anticipated land use zoning changes in Multnomah county will increase protection of large undeveloped parcels.

Similarly, Multnomah County has a Significant Environmental Concern (SEC) Comprehensive Plan and zoning overlay designation on the lands within 1/4 mile of the Sandy River to match the state designated boundary. However, current land use activities regulated under the Oregon Scenic Waterways System are exempted from the requirement to obtain an SEC permit. Review of such activities is made by the State Scenic Waterways enforcement staff (State Parks and Recreation). The SEC plan policies, nevertheless, are important factors in the County's review of all conditional or community service land use proposals.

Resource Assessment Process

October 1990 - April 1991. The BLM organized an inter-disciplinary team (ID Team) to conduct a resource assessment to determine the outstandingly remarkable values for which the river was designated. The team completed a draft resource assessment which was then reviewed by 85 resource experts, agencies and interest groups. The draft determined the river's fisheries, recreation, scenic, botanical and wildlife values to be outstandingly remarkable. Final Resource Assessment findings differ from the draft in that geologic resources were added to the list of outstandingly remarkable values.

Data Collection

November 1990 to present. BLM staff have compiled existing resource data from a variety of sources including The Nature Conservancy, state agencies and county planning departments. In an attempt to fill gaps in river baseline data, the BLM is currently conducting water quality monitoring, wildlife habitat mapping, fisheries habitat inventory and scenic and residential development assessments. The BLM has not initiated any recreation inventories or surveys. Current funding levels may preclude any additional or continued data collection or study.

As a first step in preparing a management plan for the lower Sandy River, the resource assessment provides an objective determination of important river-related values and supplies technical data to be used as baseline information for the development of a comprehensive river management plan.

An analysis was conducted, as part of the resource assessment, to compare resource values on the Sandy River to similar values on other rivers within the same geographic region. As a basis for comparison, geographic regions defined in Oregon's Statewide Comprehensive Outdoor Recreation Plan (SCORP) were used. The Sandy River is located in SCORP Region #7, the most heavily populated region in the state incorporating Columbia, Clackamas, Multnomah and Washington Counties.

The final resource assessment findings (November, 1991) concur with Congress' determination that the river's scenic values and recreational anadromous sport fishery values are outstandingly remarkable resources. Detailed assessments indicate that the river also exhibits outstandingly remarkable recreation (land and water-based), wildlife, geological, water quality and botanical/ ecological values. The above values found to be outstandingly remarkable values through the federal assessment were also found to be special attributes by Oregon State Parks through its resource analysis process.

Summary of Resource Assessment Findings

Scenic

Results of the resource assessment validate the Congressional Record that scenic quality is an "outstandingly remarkable value" within the Sandy River corridor. This truly distinctive canyon landscape is generally characterized by its near-pristine condition, steep topographic relief, and varied and diverse vegetation. The scenic quality is further enhanced by rushing rapids and still pools with occasional riverside cliffs and waterfalls. The proximity of the lower Sandy River to the Portland metropolitan area and to the Columbia River Gorge National Scenic Area adds significance to this scenic resource.

Recreation

Results of the resource assessment indicate that in addition to Congress' determination that the Sandy's recreational sports fishery is outstandingly remarkable, the river also offers exceptional recreation opportunities for nature study, land-based recreational day use and non-motorized boating or floating.

The river's proximity to the northwest's second largest population center combined with its near-pristine condition, state restrictions on motorized boating activity and easily accessible parks and river-oriented facilities make it a unique recreational resource within the region. The area's popularity is evidenced by the extremely high visitor use (900,000 - 1,000,000 visitors per year). The recreational importance of this segment of the Sandy River is supported by numerous documents, studies and guidebooks.

Fisheries

The fisheries value of the lower Sandy River is considered outstandingly remarkable based on the diversity of populations, quality of spawning and rearing habitat, and its regional importance and reputation as an excellent sport fishery. The Northwest Power Planning Act and subsequent Northwest Power Planning Council goals to increase the anadromous fishery in the Columbia River system represent recognition of the national importance of the Sandy River's fishery (Sandy River Sub-basin Plan 1990).

The Sandy River contains populations of at least eight runs of anadromous fish species (includes both wild and hatchery stock), as well as up to ten resident species. The Sandy River system exhibits a relatively large number of anadromous species in comparison with other rivers in the region and other major tributaries of the Columbia River. This species diversity is due, in part, to the river's location on the Columbia River, below the restrictions and impacts on anadromous fish species/populations created by the large Columbia River dams and water projects. Habitat within the river segment is considered good to excellent, and provides nearly ideal conditions for anadromous fish species. Riparian vegetation in the subbasin is afforded much more protection than that in other drainages in the state, contributing to generally good stream shading in the upper and middle portions of the drainage, which in turn keeps water temperatures relatively cool.

Geology

The geology of the lower Sandy River was found to be an outstandingly remarkable resource value. The geologic history of the Sandy River is complex and has given rise to a number of rare or unique features including incised oxbows from the Pliocene river channel (a phenomenon very rare in the Northwest), volcanic deposits from the Old Maid Eruptive Period, and buried forests resulting from volcanic activity 200 years ago. These rare and unique features offer exceptional opportunities for scientific study and interpretation.

Wildlife

Wildlife values within the river corridor were found to be outstandingly remarkable because of the regional significance of habitat type diversity and the number of species present. The Sandy River Gorge offers one of the greatest levels of diversity in both wildlife species and habitat of all rivers in the region. In addition, the educational and scientific wildlife values are correspondingly varied and significant. The river is used extensively for local wildlife and natural history educational and interpretive programs.

The Sandy River Gorge provides a diversity of habitat for the full complement of wildlife species typical of a low elevation site in the north Cascade Range of Oregon, and is especially valuable because the area is relatively isolated and undisturbed, yet is located within 30 minutes of the largest metropolitan area in the state. The habitats adjacent to the river and major tributaries provide critically important travel corridors for wildlife movement along the river and dispersal to and from the Larch Mountain area to the east, especially for important big game species such as the Roosevelt elk.

Water Quality

Water quality was found to be an outstandingly remarkable value based on its importance to the regionally and nationally significant fisheries of the Sandy River. The water quality of the Sandy River exceeds most state water quality standards set for the watershed. In addition, the river exhibits an unusual milky gray coloring in late summer due to glacial erosion. Termed glacial "milk" or "flour," the Sandy's gray waters are rare phenomenon for Oregon rivers originating on the west slopes of the Cascade Range.

Botanical and Ecological

The botanical/ecological resources of the lower Sandy River are considered outstandingly remarkable values because of the diversity of vegetation (plant species and communities), the presence of a unique low-elevation old-growth forest ecosystem, and its importance to scenic and wildlife values.

The heterogeneity of the vegetation found in the Sandy River Gorge is one of its most distinctive and important characteristics. These unique vegetation assemblages contribute significantly to the scenic, scientific and wildlife values of the river. In addition, the river corridor contains the last remaining stand of low-elevation old-growth forest representative of pre-European transitional vegetation in the Willamette Valley region. Very few stands of this type of low-elevation old-growth can be found in the Pacific Northwest today.

Cultural

Current information on prehistoric cultural resources within the Sandy River Gorge does not support a finding of outstandingly remarkable. Although prehistoric use of the area is indicated by general historic reference, reports of artifact occurrence, inference from cultural site locations along other rivers in the western Cascades and by the high site density along the Columbia River, no specific prehistoric cultural sites have been documented in the Sandy River Gorge.

The identified existing historic sites and features within the Sandy River Gorge also do not support a finding of outstandingly remarkable. A variety of activities associated with the exploration, settlement, economic development and recreation history of northwestern Oregon took place in the Gorge and vicinity. However, the few evident sites and features representing these historical activities are common throughout the region and are not considered rare or unusual.

Public Involvement

To fully address inherently complex river management issues and provide for greater cooperation in the development of the plan, the BLM incorporated a higher level of public involvement and interagency coordination than is normally associated with an EA planning process. A chronological list of public involvement activities is listed below.

Interagency planning group. The BLM wanted to insure that a full range of alternatives was considered. Pertinent river management issues and ideas were addressed in the plan by providing an opportunity for the discussion of planning options by key Sandy River organizations and agencies. The interagency planning team was determined to be the appropriate forum for this process if it included potential management partners representing agencies and organizations directly and currently involved in the day to day management of the river.

These key river management entities included Oregon State Parks and Recreation Department, Multnomah County Parks Services Division, Multnomah County Planning Department, Clackamas County Department of Transportation and Development, The Nature Conservancy, Portland Water Bureau, Oregon Division of State Lands, Oregon Department of Fish and Wildlife, Oregon Department of Forestry and Oregon Water Resources Department. Other agency contacts included Oregon Department of Transportation, Oregon Department of Environmental Quality, State Police, County Sheriffs, Clackamas County Parks and the City of Sandy.

August 1989. The BLM, State and Counties compiled a mailing list of about 250 interested parties, agencies and landowners. A river information letter was mailed in October outlining the river's status and the planning process. Comments were solicited and about a dozen written comments were received from agencies and interested individuals.

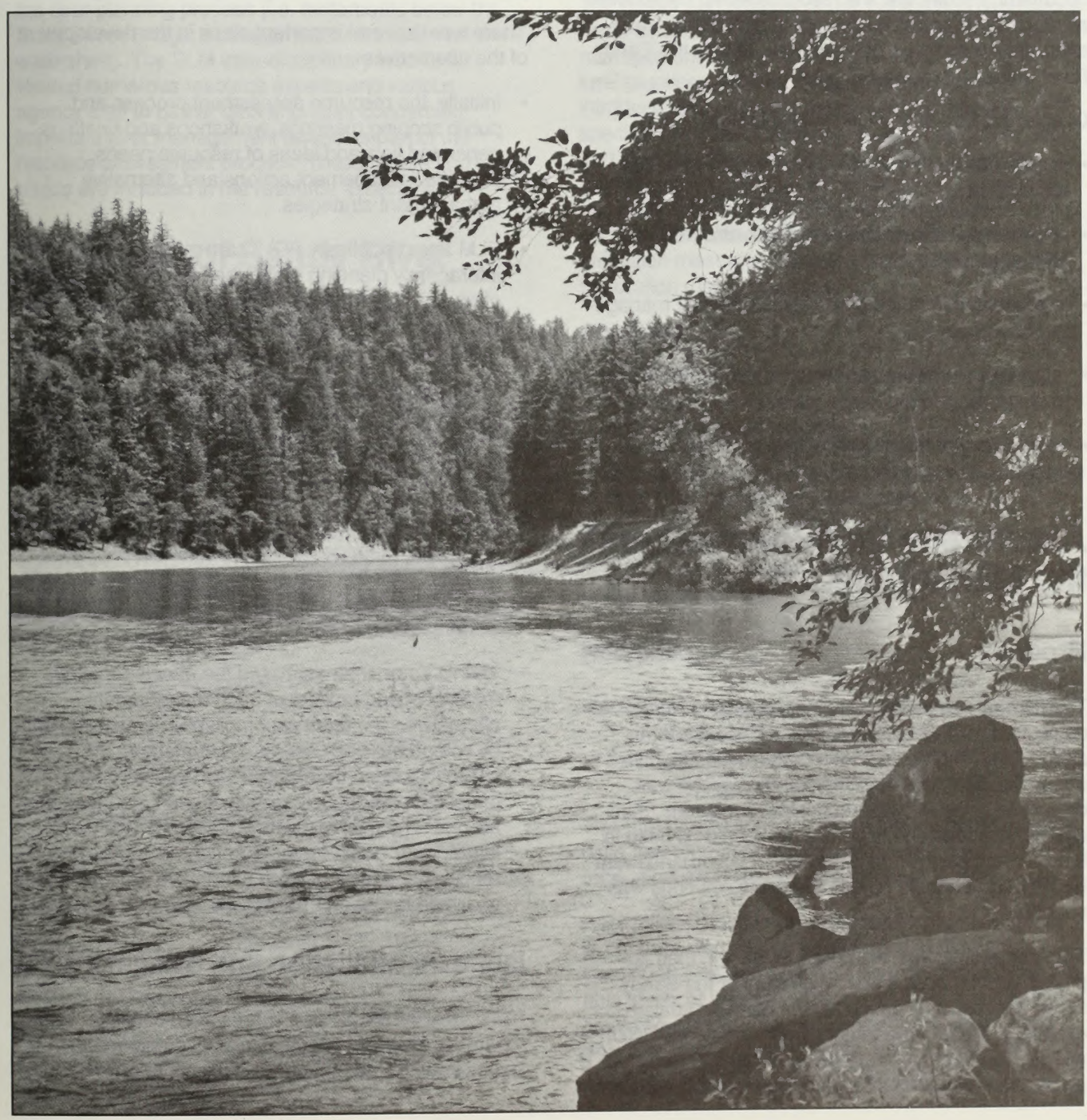
October 1989, 1990 and 1991. The BLM participated in special events, particularly the Sandy River Salmon Festival and handed out information about the Sandy River planning process to the public. Additions were made to the mailing list.

September 1990 - May 1991. River planning consultation, status briefings and informal meetings were held with a variety of agencies and interested members of the public including congressional staff, Clackamas and Multnomah County Commissioners and planning staff, Department of Forestry, State Parks, ODFW, Water Resources Department, The Nature Conser-

vancy, individual landowners, the Bull Run community, Portland General Electric, river interest groups and others to discuss Sandy River issues and planning concerns.

May 1991. The BLM and State Parks conducted three public scoping meetings to discuss key river issues, inform citizens of the planning process and solicit public comment about river management. River planning information and meeting notifications were mailed to all interested parties and landowners along the river. Meetings were held in Salem, Troutdale and Sandy and had a total attendance of 75 citizens. In addition, the BLM co-sponsored a Sandy River Symposium to discuss river issues and generate planning ideas. The symposium was held in Sandy and attended by about 80 persons.

Chapter II
Alternatives



Purpose and Organization

Chapter II describes and compares the four alternatives developed for management of the lower Sandy River as a component of the National Wild and Scenic River System and the Oregon State Scenic Waterways. Chapter II describes the alternatives in terms of the conditions which are intended to be created, the restrictions which would be placed on some activities and uses in order to achieve those conditions, and specific management actions prescribed to maintain and/or enhance resource values. The intent of the terms "enhance" or "improve," used throughout this document, implies that the resource would be restored as much as possible to pre-impact conditions. Each alternative presents a different view of how the Sandy River should be managed in the future.

Chapter II contains the following sections:

- a brief description of how the alternatives were developed.
- a discussion of key issues to be considered in management.
- a presentation of the goals established for management of the river.
- a general overview and description of each alternative.
- a summary of the alternatives in a comparative table.

Alternative Development and the Management Plan

Process

The alternatives analyzed in this document were developed with input from the public and the interagency planning group. Each of the issues identified by the public, agencies, and the planning group was discussed in detail. Various desired conditions, management options and actions which could be used to resolve the issues were identified. In accordance with NEPA, a reasonable range of feasible solutions was sought.

The four alternatives, A through D, vary in their approach and emphasis as to the future of the Sandy River. Alternative A describes the current situation, explaining what management jurisdictions and actions are already in place or are being pursued. Alternative B emphasizes enhancement of recreation opportunities through increased public access and improvement of facilities as well as increased recreation management such as information, monitoring and enforcement. Alternative C emphasizes resource protection actions which would seek to protect and restore natural resource values over all other land and water uses including development and recreation. As the preferred alternative, Alternative D represents an effort to seek a balance of resource protection and the provision of appropriate recreational opportunities. It strives to maintain and restore, where possible, values for which the river was designated. It combines selected actions from Alternatives A, B and C. Alternative D is the preferred alternative developed by the planning team.

There were several important steps in the development of the alternatives:

- Initially, the resource assessment process and public scoping meetings, workshops and briefings generated lists and ideas of resource needs, possible management actions and alternative management strategies.
- BLM Interdisciplinary (ID) Team members and the interagency planning group then developed a range of alternatives from which to formulate a management plan and make boundary adjustment recommendations.
- The BLM ID Team developed a set of alternative management strategies. One of the management strategies combines actions selected from the range of alternatives into a preferred alternative, or management plan. The interagency group acted as a sounding board to assist the ID team refine the alternative management plans with specific management actions. Specifically, the interagency team was instrumental in the development of Alternative D, the preferred alternative.
- The ID Team then assessed the effects (environmental consequences) of each management alternative. The team accomplished its assessments by comparing each alternative strategy to the current situation (Alternative A). The team then projected probable outcomes of each management actions. The final results were submitted to the interagency group for input, refinement and concurrence. The effects of each alternative are fully analyzed in Chapter IV of this document.

Issue Identification and Statement

NEPA defines issues as "...unresolved conflicts regarding alternative uses of available resources." Issues can also be defined as subjects of public

interest relating to the management of the river.

A number of key issues have been identified as a result of public scoping. These management issues are summarized by resource in the issue statements below. Essentially, the public would like to see the river remain similar to the way it is now. Issues involving water quality and quantity, protection of wildlife habitat, recreation access and impacts (i.e. Dodge Park), fishing regulations and fisheries habitat improvement dominated the scoping process. Many of the critical issues most often mentioned by the public are associated with the river sections upstream and downstream of the designated segment or are beyond the scope of the river planning process (i.e. motorboats below the Stark Street Bridge, management of the Bull Run watershed). The BLM inter-disciplinary team interviewed numerous resource experts and various agency staff to gather data and input concerning important river management issues as part of the resource assessment process. These issues and data needs are included in the resource assessment.

Summary of Sandy River Issues

The public's overwhelming response and emphasis concerning management of the Sandy River Gorge and vicinity is simple: keep the river similar to the way it currently exists and protect its values. The vast majority of comments indicated that most people would like the river to maintain its existing natural values and character. Conflicts center primarily around private land use and development, timber harvest, fisheries management and recreation use. **Key issues are summarized in the topics below and reflect the public's comments on how and what should be addressed in the management plan.**

- **Fisheries Management**
- **Recreation**
- **Wildlife/Habitat Management**
- **Botanical/Ecological Protection**
- **Water Quality and Quantity**
- **Private Land Development**
- **Timber Harvest**
- **Cultural Resources**

Fisheries Management

Issues: What will or can be done to improve fish habitat and protect wild fish populations? Can sport fishing opportunities be enhanced as well?

The Sandy River has excellent habitat and a diversity of fish species. Fishing is a primary recreational activity on the river. Issues surrounding habitat maintenance and enhancement as well as stock management are of primary concern and interest to river users and landowners. The fish issue has several facets.

The quality and quantity of fish habitat and populations could be affected by various factors, including forest management activities, urban development, agricultural practices, fishing, changes in water quality, introduction of and competition from non-native species, removal of trees and woody debris and bed and bank modification. Past events affecting fish habitat include hydroelectric developments and water impoundments on tributaries, erosion and flood control, bed and bank disturbance and land use activities. Mitigation measures, inventory and additional habitat restoration may be possible.

Objectives:

- Habitat enhancement and restoration efforts are recognized as a priority, including protection of water quality and quantity.
- Populations of wild stock are of special concern and should be emphasized in management.
- Fishing regulations and enforcement are an issue, particularly to limit impacts to fish populations and private/public lands.

Recreation

Issues: How can recreation be better managed to reduce impacts caused by visitors? How can access and facilities be improved without changing the character of the river?

The Sandy is very popular for a variety of recreational uses and recreational use is expected to increase. The recreation issue has several key components.

Recreational uses impact the quality of the recreation experience and other resources in the river corridor. Continued and increased use could result in unacceptable levels of impacts. Impacts could include overcrowding, change in recreational or physical settings, trespass on private land, trash, bank erosion, degradation of water quality, over-fishing, damage to fish

habitat, disturbance to wildlife and wildlife habitat, wildfire and loss of riparian vegetation.

Providing continued high quality recreational opportunities is extremely important. Issues focused on recreation access, management, facilities and visitor education.

Objectives:

- There is a need to maintain and improve public access, facilities, trails and visitor information in appropriate areas.
- Trash, dumping, litter and vandalism are a continued problem at many locations and needs to be corrected.
- There is a need to coordinate river management and increase management presence. Agencies should work together to establish river patrol, conduct recreation monitoring efforts and establish policies for commercial river use activities.
- Trespass is an important concern of landowners. Visitor use should be directed to appropriate areas.
- A lack of sufficient management of Dodge Park is a primary concern of recreationists and nearby residents. Stronger management actions are needed to ensure quality of the recreation experience at Dodge Park.
- Agencies should provide better visitor information, interpretation and environmental education opportunities.
- Irresponsible motorized boating below the designated corridor and off-road vehicle use in the corridor is a problem. The corridor should be managed for non-motorized forms of recreation.

Water Quality and Quantity

Issues: What is being done to insure protection of the river's water quality and adequate flows?

The Sandy and its tributaries are noted for high water quality. The main stem is known for its unique glacial color during late summer flows. Water quality and quantity can be adversely affected by a wide range of land use, recreation and water development activities.

Objectives:

- Water quality should be monitored and pollution/sediment sources identified and regulations enforced.
- Water quantity should also be monitored and minimum instream flows for fish and recreation should be established, monitored and legally protected.
- Development in the basin related to water use should be addressed, i.e. conservation promoted and water use coordinated.
- Water rights for existing users and zoned future land uses must be protected and minimum flows should reflect natural low flow conditions and should not unfairly burden water users upstream of the Bull Run.

Wildlife/Habitat Management

Issues: What will or can be done to protect wildlife habitat and populations?

The river corridor provides habitat for many species of wildlife, including habitat for big game, bald eagles and osprey. Adverse impacts to wildlife habitat could reduce the amount or quality of habitat for some species, or break the continuity of habitat. Possible impacts include residential, agricultural or recreational development, increased use, forest management activities, or other land use activities. Adverse impacts to populations could reduce the diversity of species within the corridor. Possible impacts on populations include loss or degradation of habitat, and disturbance of wildlife by human activity.

Objectives:

- Wildlife habitat should be protected and enhanced where possible, especially wetlands and riparian areas.
- Habitat areas should be inventoried and migratory routes should be protected, particularly along routes to and from the Larch Mt. area (Trout and Gordon Creeks).
- Monitor wildlife species, specifically big game like the elk. Elk conflicts with nurseries and other landowners should be resolved.
- Surveys and monitoring of other wildlife species are needed.
- Birds of prey should be surveyed and protected, i.e. peregrine falcon reintroduction.

Botanical/Ecological Resources

Issues: What will be done to protect the ecology of the area, including plants and riparian areas?

The river corridor contains a diverse, unique and abundant variety of plant communities, including old growth, wetland, riparian and cliff habitats. Impacts on these plant communities could reduce their quality, extent or diversity. Possible impacts include development of any kind, increased use, timber management activities, herbicide/pesticide application, wildfire, introduction of exotic species and changes in water flow or water quality.

Objectives:

- Conserve, monitor and protect ecosystems and biological diversity and valued species (i.e. yew trees, rare plants, etc.).
- Manage the corridor with a total ecosystem approach, manage for balance.
- Geological and ecological features should be interpreted at parks. The area's geological and ecological uniqueness and scientific value should be recognized.
- Riparian areas should be protected.

Cultural Resources

Issues: What can be done to enhance awareness of the area's cultural resources and how can we insure resources will be protected?

Known cultural resources within the corridor are limited. However, nearby and adjacent areas have great significance. Impacts on cultural resources are difficult to estimate and more information is needed. Impacts to cultural resources could include development near cultural sites and natural erosion.

Objectives:

- Inventories should be conducted where possible to better insure protection and stabilization of any sites.
- Cultural resources and history should be better interpreted at parks.

Timber Harvest

Issues: What level of timber harvest should or can be allowed in the river corridor?

The timber issue, while relatively limited in the Sandy River corridor, has several facets. Timber harvest in the river corridor could affect scenic values, water quality, vegetation, fisheries and wildlife. Clearcutting is of special concern because it potentially has the greatest impacts. Timber harvest for commercial purposes on public lands within the corridor is essentially non-existent. All federal lands are administratively withdrawn due to special uses or designations. For example, lands leased to Multnomah County are reserved for recreational purposes and land within the BLM Sandy ACEC is maintained in its natural state. Timber management activities occur to a limited degree on private lands and can occur through consultation with Oregon Department of Forestry and State Parks.

Concerns over the effectiveness of monitoring and enforcement by the Scenic Waterways program were raised. Specific concerns are the State Scenic Act limitations (the state's ability to acquire land or rights is limited due to lack of state money, funding and the possibility that land use activities or developments can occur if agreement on development restrictions is not reached within one year).

Objectives:

- Forestry practices within and beyond 1/4 mile are a concern, particularly as they may affect views from the river.
- Boundaries should be expanded to include highly visible areas (rim to rim) and if public wants views protected, conservation easements should be acquired.
- Department of Forestry should better protect through higher standards for timber harvest on private and public lands along state and federal scenic rivers (and their immediate tributaries), i.e. wide buffers, longer rotation, riparian/wetland protection.

Private Land Development

Issues: Loss of property rights has occurred through restrictive management practices and owners have not received compensation for lost rights. What can be done to correct this situation? What can be done to ensure good conservation practices on private lands? What can be done to control trespassers?

Over half of the lands within the 1/4 mile corridor are privately owned. Private property rights versus resource protection is a central issue for the river. Current county zoning along with existing State Scenic Waterway rules afford good levels of protection from inappropriate development. However, concerns were raised over problems with enforcement and lack of landowner awareness of existing rules and regulations. Impacts from uncontrolled development include loss of wildlife or plant habitat, incremental degradation of river

views, degradation of water quality and increased wildlife disturbance.

Another facet to the private land issue involves impacts to private lands from recreationists. These impacts include trespass, disturbance of peace or property, trash and litter. Increased river use could result in an increase of these impacts.

Objectives:

- Efforts should be made to control private land trespass, particularly by anglers and river users.
- Effectiveness and enforcement of existing county and state regulations concerning private property development should be reviewed and improved.
- Efforts should be made to inform and educate landowners about incentives, rules and conservation practices, as well as to involve them in the day-to-day management of the river.
- Technical and financial assistance to landowners should be increased for mitigation of impacts.
- Navigability issue should be clarified by Division of State Lands with landowners concerning ownership of bed and bank.

Recommended Sandy River Management Goals

The following river management goals were derived from the intent of the Wild and Scenic Rivers Act, the Oregon Omnibus Act, federal agency guidelines for Wild and Scenic Rivers, and input from the public and the interagency planning group.

These goals are intended to guide and help focus the management plan to insure that any recommended actions or set of actions result in an intended outcome.

- Protect the river's free-flowing character, and protect and enhance its outstandingly remarkable values and special attributes: scenic values, recreational, geological botanical/ecological and hydrological values, water quality and wildlife and fisheries.
- Provide opportunities for a wide range of non-motorized river-oriented recreational activities managed in a fashion to prevent degradation of the outstandingly remarkable values.
- Protect and enhance the quality and quantity of river water. Maintain acceptable levels of water temperature, suspended sediment, chemicals and bacteria.
- Protect and enhance habitat for fish and wildlife species. Protect and enhance the stream channel conditions that provide high quality fish habitat.
- Maintain and/or enhance the integrated ecological functions of rivers, streams, floodplains, wetlands, lakes and the associated riparian areas.
- Provide for plant and animal community diversity and maintain and/or enhance healthy functioning ecosystems, as the foundation to sustain long-term productivity.
- Help to reduce conflicts between recreationists and private property owners and reduce trespass on private property.
- Strive for a balance of resource use and permit other activities to the extent that they protect and enhance the quality of the river's outstandingly remarkable values and special attributes.
- Develop a partnership among landowners, county and state governments, and federal agencies to determine the future of the Sandy River and share in management responsibilities for the river.
- Recognize and respond to the socio-economic effects of management strategies. Recognize the public's varied needs and involve them as partners and participants in managing the river corridor through awareness, interaction and communication.
- Emphasize user education and information. Strive for all public use to be educated use. Establish as few regulations as possible and ensure that any regulations established are enforceable and enforced.
- Foster cooperative interpretation and environmental education efforts.
- Develop a management plan that is reasonable, cost-effective, implementable and achieves protection of the outstandingly remarkable values.
- Identify, provide, and protect instream flows which are necessary to maintain and/or enhance the outstandingly remarkable values of the Sandy River.
- Strive to develop effective, compatible and consistent land use management through coordination with local land use planning authorities.

Description of the Alternatives

This section provides a general overview of each of the alternatives. The summary descriptions are followed by a comparison table detailing management actions for each resource category.

Each of the following alternatives would achieve these goals to varying degrees.

Alternative A (Current situation)

Goal: Continue with present management direction and manage under existing laws and authorities. This alternative is the "no action" alternative that is required by NEPA.

Intent: Management of resources will continue as it has in the past under a variety of jurisdictions and administrations. Current rules, regulation, management and enforcement efforts would be maintained. No additional federal funding or management would occur within the corridor. Existing jurisdictions and authorities would remain in place. No change to the existing state, city or BLM land uses or activities or county planning and zoning. This would be the NEPA "no action alternative" from which environmental and socio-economic effects would be assessed.

Boundaries: Continue with interim boundaries of 1/4 mile from each side of the river.

Recreation and public access: No change in the level or type of recreational services or facilities. No new signing or visitor information would be provided in addition to any planned by existing parks. No expansion of existing facilities and no new trails or access areas would be improved or developed. No additional restriction, monitoring or management of recreation use or access would take place.

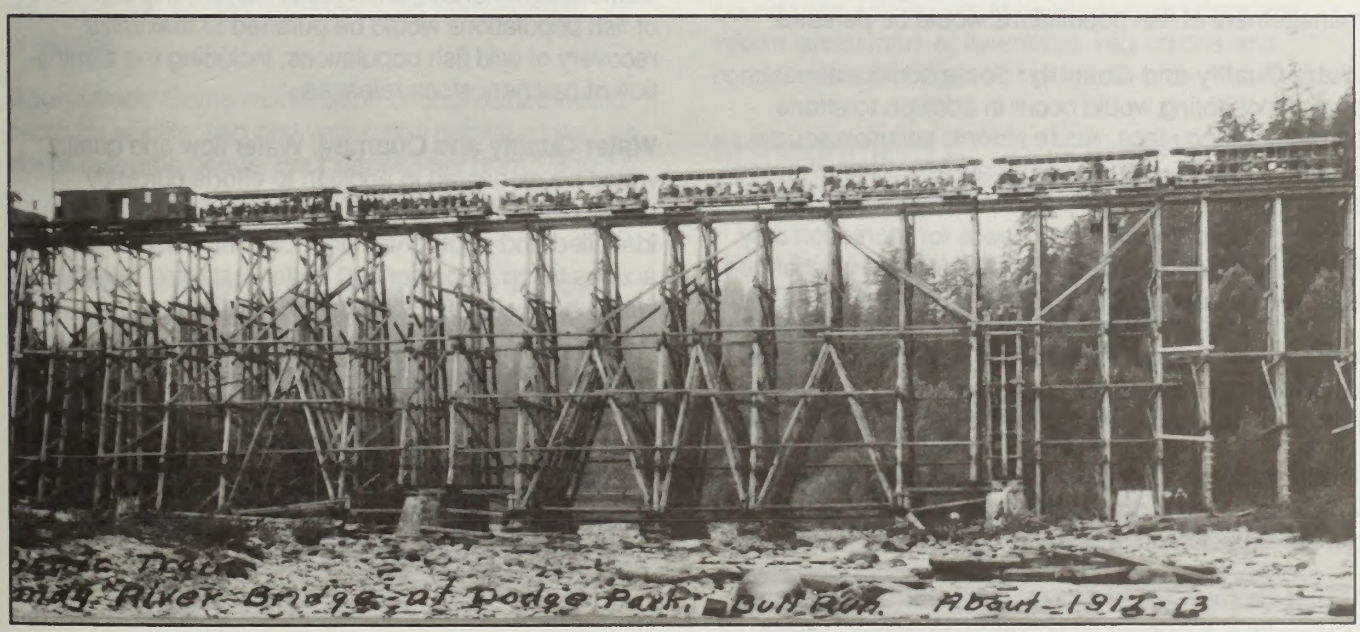
Fisheries: No new fishery inventory or habitat restoration projects would be initiated. No recommended changes to current management of fish populations would be pursued.

Water Quality and Quantity: No additional water flow and quality monitoring would occur beyond efforts currently taking place. No instream flow studies would be conducted to determine flow needs for recreation, fish or other resources.

Vegetation: No new enhancement, monitoring or management activities would occur other than those currently underway through TNC, Reed College and BLM.

Wildlife: No new enhancement, monitoring or management activities would occur.

Visual resources and Land Use: Current state and county regulations and current enforcement levels would continue.



Bull Run Picnic Train circa 1912-13.

Alternative B

Goal: Maximize the recreation potential and opportunities of the river corridor while still protecting other river values.

Intent: This alternative would seek to enhance existing and develop potential recreation opportunities within the river corridor. Under this alternative recreation opportunities would be encouraged and enhanced. Recreation management would be coordinated among agencies, facilities upgraded, information and education programs improved, river access and trails improved or developed, viewshed protection would be increased to the fullest extent possible under each river classification (scenic & recreational). New trails and public access sites would be developed as long as they would not significantly or permanently degrade other natural resources.

Boundaries: Modify boundaries for recreational and visual resource needs. Boundaries vary from 1/8 to 1/2 mile from each side of the river.

Recreation and public access: The level of recreational services or facilities would be enhanced and maximized. New signing and visitor information would be provided in addition to that planned by existing parks. Expansion or improvement of existing facilities and new trails or access areas would be pursued where needed. Additional restrictions, monitoring and management of recreation use or access would take place.

Fisheries: Some new fish inventories and habitat restoration projects would be initiated particularly along the main stem. No recommended changes to current management of fish populations would be pursued.

Water Quality and Quantity: Some additional water quality monitoring would occur in addition to efforts currently taking place. Acute chronic pollution source would be identified and appropriate agencies informed and actions taken. Instream flow studies would be conducted to determine flow needs for recreation only. Flow studies would be used to substantiate or change existing management practices.

Vegetation: Some additional monitoring and interpretation activities would occur for vegetation, particularly involving recreational impacts and use areas.

Wildlife: Some monitoring or management activities would occur for wildlife, particularly involving recreational impacts and use areas.

Visual Resources and Land Use: Current state and county regulations would continue. However current enforcement levels would be reviewed and improved. Some scenic easements would be pursued beyond state scenic waterway boundaries.

Alternative C

Goal: Enhance all natural resource values, restore the natural character of the river where possible.

Intent: The purpose of this alternative would be to enhance scenic and ecological values of the river corridor. It would provide public access and recreation opportunities only when they are not in conflict with natural values. The focus of management would be to enhance watershed and stream characteristics, botanical values, fish and wildlife habitat and visual resources while exercising greater control over recreation use to ensure resource protection.

Boundaries: Modify boundaries for wildlife, fish and vegetation habitat and resource needs. Boundary varies from 1/8 to 1/2 mile from each side of the river and along major tributaries in critical areas.

Recreation and public access: The level of recreational services or facilities would be minimized. New signing and visitor information would be provided only when necessary to protect other resources. Expansion or improvement of existing facilities and trails or access areas would not occur. Additional restrictions, monitoring and management of recreation use or access would take place only to protect other river resources.

Fisheries: New fish population and habitat inventories and habitat restoration projects would be initiated particularly along the main stem and major tributaries. Some recommended changes to current management of fish populations would be pursued to maximize recovery of wild fish populations, including the elimination of hatchery stock releases.

Water Quality and Quantity: Water flow and quality would be monitored in addition to efforts currently taking place. Acute chronic pollution source would be identified and appropriate agencies informed and actions taken as prescribed under state and federal water quality laws. Instream flow studies would be conducted to determine flow needs for fish only. Flow studies would be used to substantiate or change existing management practices.

Vegetation: Additional inventory and monitoring activities would occur. Programs for landowners regarding botanical/ecological information and willing seller easements would be pursued.

Wildlife: Inventory, monitoring and management activities would occur for wildlife particularly involving habitat restoration and protection. Impacts to populations and habitat from development and recreation would be monitored. Special status species, currently lost from the system such as peregrine falcons would be re-introduced and new inventories, such as herpetological and bird, would be initiated.

Visual Resources and Land Use: Current state and county regulations would continue. However current enforcement levels would be reviewed and improved. Some scenic and conservation easements would be pursued within and beyond state scenic waterway boundaries.

Alternative D (Preferred Alternative)

Goal: Provide for the balanced protection and enhancement of all outstandingly remarkable river values. Maintain the natural character of the river, enhance fish habitat and other natural values, and improve management of recreation facilities and activities.

Intent: This alternative would seek to maintain and enhance important river related values such as fisheries, wildlife, and water quality while improving management of current recreation sites and activities. Some existing recreation sites would be improved to a limited degree for the purpose of channelling existing recreation use to appropriate areas to reduce impacts and crowding. This alternative would provide a management strategy that would strive to conserve and enhance natural values while recognizing private property and land use rights and resource uses. It also would provide appropriate but limited recreation development, access and increased management presence.

Boundaries: Some modification of boundaries would occur for wildlife, fish and vegetation habitat as well as visual resource needs. Boundaries vary from 1/8 to 1/2 mile from each side of the river and along major tributaries and viewshed in critical areas.

Recreation and public access: The level of recreational services or facilities would be improved. New signing and visitor information would be provided to protect other resources and enhance the recreation experience. Cooperative interpretive efforts would be initiated. Expansion or improvement of existing facilities and trails or access areas would occur in some high use areas. Additional restrictions, monitoring and management of recreation use or access would take place to protect private lands, reduce recreation conflicts and protect other river resources.

Fisheries: Some new fish population and habitat inventories and habitat restoration projects would be initiated particularly along the main stem and major tributaries. Any recommended changes to current management of fish populations would only be made to enhance recovery of wild fish populations.

Water Quality and Quantity: Water flow and quality would be monitored in addition to efforts currently taking place. Acute chronic pollution source would be identified and appropriate agencies informed and actions taken. Instream flow studies would be conducted to determine flow needs for recreation and fish. Flow studies would be used to substantiate or change existing management practices.

Vegetation: Additional inventory and monitoring activities would occur. Programs for landowners regarding botanical/ecological information would be pursued with less emphasis on acquisitions. Emphasis will be on habitat restoration and protection in critical areas.

Wildlife: Several inventory, monitoring or management activities would occur for wildlife particularly involving habitat restoration and protection in critical areas. Impacts to populations and habitat from development and recreation would be monitored. New special status species, such as peregrine falcons would be introduced and new inventories, such as herpetological and bird, would be initiated.

Visual Resources and Land Use: Current state and county regulations would continue. However, current enforcement levels would be reviewed and improved. Some scenic and conservation easements would be pursued within and beyond state scenic waterway boundaries. Efforts would be made to educate and inform landowners of incentives, regulations and conservation practices.

Management Actions and Elements Common to All Alternatives

Some elements and management actions are common to all four alternatives and are stipulated by the Wild and Scenic Rivers Act or State Scenic Waterways Rules, or are required and affected by other laws.

Fish and Wildlife: The fishery and critical wildlife habitat areas in the designated river corridor would continue to be protected. Any activity or project in the Wild and Scenic River Corridor or tributary watersheds that may cause adverse consequences to fish or wildlife populations or habitat, and thus degrade these outstandingly remarkable values (ORVs), shall identify the existing habitat conditions, the risk and magnitude

of the consequences and measures to be taken to eliminate or satisfactorily mitigate any impacts to fish and wildlife resources. Authority and management of fish and fishing regulations remains with ODFW. Threatened or endangered species will be managed in accordance with the Endangered Species Act.

Water quality and quantity: Water quality must meet the Clean Water Act and Oregon Water Quality Standards. Legal beneficial uses and existing water rights will not be impaired. Water rights and minimum instream flows are established, pursued and protected under state law.

New major water structures are prohibited. New minor structures, existing low dams, diversion works, erosion control efforts and other structures may be allowed and maintained provided the waterway remains natural in appearance and its free-flowing condition unimpaired. No development of hydroelectric facilities will be permitted.

Visual Resources and Land Use: State Scenic Waterways and county zoning regulations will continue subject to compliance with federal designation as stipulated under Goal 5 of state land use law.

Timber, fire management and mining: Forestry practices on state and private lands will be administered by the ODF and limited by the State Scenic Waterways Acts. Commercial timber harvest activities on federal lands are restricted through administrative withdrawals. Fire management responsibility rests with the state and will continue to be predicated on a policy of aggressive suppression of wildfire while minimizing suppression practices that could cause long-term impacts on the river. BLM will work with state agencies to mitigate any impacts caused by fire suppression activities on lands within the corridor. For example, consult with hydrologists and ecologists in order to minimize effects. Prescribed fire may be used to reduce threat of wildfire or restore/enhance the ecological condition of the river corridor. Placer or dredge mining within the river corridor is not allowed under the State Scenic Waterway Act.

Dipping for smelt at the Sandy River Bridge near Troutdale in the 1920's

COMPARISON TABLE FOR ALTERNATIVES

	SANDY WILD AND SCENIC RIVER MANAGEMENT ALTERNATIVES			
	ALTERNATIVE A	**ALTERNATIVE B**	**ALTERNATIVE C**	**ALTERNATIVE D**
KEY PLANNING ISSUES:	CURRENT MANAGEMENT (No Action) **GOAL:** Continue with present management direction and manage under existing laws and authorities. **INTENT:** Management of resources will continue as it has in the past under a variety of jurisdictions and administrations. Current rules, regulation, management and enforcement efforts would be maintained. No additional federal funding or management would occur within the corridor. Existing jurisdictions and authorities would remain in place. No change to the existing state, city or BLM land uses or activities or county planning and zoning. This would be the NEPA no action alternative from which environmental and socio-economic effects would be assessed.	**GOAL:** Maximize the recreation potential and opportunities of the river corridor while still protecting other river values. **INTENT:** This alternative would seek to enhance existing and develop potential recreation opportunities within the river corridor. Under this alternative recreation opportunities would be encouraged and enhanced. Recreation management would be coordinated among agencies, facilities upgraded, information and education programs improved, river access and trails improved or developed, and viewshed protection increased to the full extent possible under each river classification (scenic & recreational). New trails and public access sites would be developed as long as they would not significantly or permanently degrade other natural resources.	**GOAL:** Enhance all natural resource values, increase the natural character of the river where possible. **INTENT:** The purpose of this alternative would be to enhance scenic and ecological values of the river corridor. It would provide public access and recreation opportunities only when they are not in conflict with natural values. The focus of management would be to enhance watershed and stream characteristics, fisheries, wildlife and visual resources while exercising greater control over recreation use to emphasize resource protection.	**GOAL:** Provide for the balanced protection and enhancement of all outstandingly remarkable river values. Maintain the natural character of the river, enhance fish habitat and other natural values, and improve management of recreation facilities and activities. **INTENT:** This alternative would seek to maintain and enhance important river related values such as fisheries, wildlife, and water quality while improving management of current recreation sites and activities. Some existing recreation sites would be improved to a limited degree so as not to encourage greater use but to channel existing recreation use to appropriate areas to help reduce impacts and crowding. This alternative would provide a management strategy that would strive to conserve and enhance natural values while recognizing private property and land use rights and resource uses. It also would provide appropriate but limited recreation development, access and an increased management presence.

	SANDY WILD AND SCENIC RIVER MANAGEMENT ALTERNATIVES			
	ALTERNATIVE A	**ALTERNATIVE B**	**ALTERNATIVE C**	**ALTERNATIVE D**
BOUNDARIES	Continue with current federal interim boundaries for entire river (1/4 mile each side), same as State Scenic Waterway boundaries. Average approximately 320 acres per river mile Total acres: 4,000 (est.)	State Scenic Waterway boundaries remain the same, 1/4 mile on each side of the river. River boundaries for the federal corridor would be modified to reflect visual resource needs, rim to rim. Boundaries would be expanded in some areas and narrowed in others. Average 368 acres per river mile[1]. Total acres: 4,600 (est.)	Expand boundaries to incorporate portions of the Trout, Gordon and Walker Creeks, west side of the river near the county line. Modify (narrower) boundary to follow gorge rim to provide additional protection to wildlife and fisheries habitat and to reduce administrative overlap and restrictions on private lands beyond the rim. Average 364 acres per river mile. Total acres: 4,550 (est.)	Same as Alt. C but with less acreage in the Trout Creek and Gordon Creek areas. Average 316 acres per river mile. Total acres: 3,950
ADMINISTRATION	Current jurisdictions (County, State and Federal), no formalized coordinated management	Joint BLM and State Parks management agreement. Working cooperatively with county government, Portland Water Bureau, ODFW, The Nature Conservancy where appropriate through development of a memorandum of understanding.	Same as Alt. B.	Same as Alt. B with an interagency work group of river related organizations.
EASEMENT AND LAND ACQUISITION	None	Easement acquisition focused on providing additional recreational access and for visual resource management priorities.	Expanded acquisition of easements to maintain scenic qualities of the river within the corridor and to improve protection of watershed, fish, wildlife and other values.	Limited public access, scenic and conservation easement acquisition from willing sellers of a few high priority locations for fish, wildlife and scenic values.

[1] **Under the Wild and Scenic Rivers Act, acreage within the boundaries can not exceed an average of 320 acres per river mile (1/4 mile average on each side of the river). If selected, alternatives B and C would require additional Congressional approval to exceed the 320 acre per mile average.**

SANDY WILD AND SCENIC RIVER MANAGEMENT ALTERNATIVES

	ALTERNATIVE A	ALTERNATIVE B	ALTERNATIVE C	ALTERNATIVE D
RECREATION Experience and Opportunities Summary	* No change in the level or type of recreational services, facilities or management. * No new signing or visitor information would be provided other than that to be provided by the state, TNC, city or county at their lands or parks. * No expansion of existing facilities and no new facilities/trails would be constructed other than that done individually by the state, TNC, city or county at their lands or parks. * Current management for recreation use and levels of ranger patrols/staffing would take place on county, state and BLM lands. No additional management activities or patrols would take place on other private lands or along the river. * Current state and county regulations, enforcement and procedures would be used to address problems of trespass, vandalism, litter, dumping, and fire on river on private lands.	* Recreation opportunities within corridor would be enhanced through the expansion and improvement of existing facilities and access areas and/or the development of new campgrounds and trails. * Additional recreation management efforts would be implemented including more frequent ranger patrols on BLM, state and county lands and increased monitoring of use levels and impacts. * Additional information, signing and services would be provided to visitors. MOUs would be developed with State Police cadets to help enforce state and county regulations, primarily fishing regulations, litter, dumping, and fire on river.	Same as Alt. A. with * Increased management of recreation on federal lands and other public lands to reduce impacts on vegetation, fish and wildlife. Greater agency presence during fishing and hunting seasons. * Evaluate need for seasonal recreation use restrictions during critical wildlife seasons or habitat areas.	Same as Alt. B with the following changes: * Less emphasis on agency presence, reduced numbers of patrols, and only limited new visitor information, signing and services. No new facilities would be developed, some access locations would be closed for rehabilitation and others improved for parking, sanitation and signing.

	SANDY WILD AND SCENIC RIVER MANAGEMENT ALTERNATIVES			
	ALTERNATIVE A	**ALTERNATIVE B**	**ALTERNATIVE C**	**ALTERNATIVE D**
RECREATION Public Access, Trails and Facilities	* No new river recreation facilities, campgrounds or trails would be developed. * Expansion of or improvements to existing facilities would only occur if funding were made available under current site management (respective state, county and city facilities). * Allow reconstruction of existing trails when necessary. * No new public access would be provided or acquired to or along the river. * No new trails or access facilities would be developed.	* Develop a management strategy for Dodge Park, in coordination with the Portland Water Bureau's long-term potential use for the site and recreation access/facility needs. * BLM work with Multnomah County Parks and State Parks to provide for improvement of existing parking/trailhead areas along Gordon Creek Road (near mouth of Gordon Creek), provide sanitation and signing as appropriate to address safety and environmental concerns. * Provide primitive sanitation facilities at key public use access areas. * Initiate a joint Sandy River Trail feasibility study (State Parks, BLM, TNC, PWB, PGE, DSL, landowners and interest groups) to address a possible trail within the river corridor from Dodge Park to Oxbow Park. * Acquire (willing seller easement, purchase or exchange) access west of river in the pipeline/Camp Namanu area, provide parking, signing and site monitoring/management. * Allow reconstruction and realignment of existing trails when necessary. * Close and rehabilitate existing dispersed camping sites along river in riparian areas where resource damage is present. * Improve and sign public river access trails in cooperation with TNC, Multnomah County and private landowners as needed (e.g. BLM ACEC, area east side of river at Oxbow Park) in cooperation with TNC, Multnomah County and private landowners as needed.	Same as Alt. A. with * Recreation use on some areas on federal lands may be controlled to protect critical habitats or to reduce effects on wildlife during critical seasons.	Same as Alt B. with the following changes: * Provide primitive sanitation facilities at key public use access areas if water quality testing or area monitoring documents impacts. * Do not initiate a Sandy trail feasibility study. * Do not provide access signing for the BLM ACEC.

	SANDY WILD AND SCENIC RIVER MANAGEMENT ALTERNATIVES			
	ALTERNATIVE A	**ALTERNATIVE B**	**ALTERNATIVE C**	**ALTERNATIVE D**
RECREATION Management and Monitoring	* No recreation management (patrols, signing, information or presence) would occur on public or in cooperation with county/state on private lands. * No additional recreation monitoring would take place. * No effort would be made to establish carrying capacity for recreation along the river except as addressed in specific existing recreation site plans. * Institute an outfitter and guide policy and permit outfitted use as required. * Oregon State Marine Board (OSMB) would continue to restrict motorized boating use in the designated segment.	* Additional signing and information would be used initially to channel recreation use to appropriate locations and encourage resource protection practices. * Increased levels of agency/ranger patrols, visitor contact and enforcement would be provided by the State Parks and BLM during high use periods. * Utilize Oregon State Patrol Cadets to help enforce fishing and other regulations on river. * The managing agencies would develop and implement a comprehensive recreation monitoring program and visitor use survey (year round study). * Conduct cooperatively sponsored annual river clean-up event and pursue river clean-up efforts in coordination with county, state, BLM and others. * Establish Limits of Acceptable Change (LAC) process for recreation use and impacts for determining use level capacities and needs for facility development. * Recommend that Multnomah County increase county penalty for illegal dumping and establish interagency agreement to allow BLM and USFS rangers to enforce or write citations * Continue to restrict motorized boating use in the designated segment. * Implement longer visitor hours at Oxbow Park or provide parking at entrance so that recreationists can gain access after park hours * Work with counties and PWB to improve parking areas, provide sanitation facilities (Dodge Park area- west side of bridge, Gordon Creek and Trout Creek roads) * Institute an outfitter and guide policy and permit outfitted use as required.	Same as Alt A. with * Increased monitoring of effects of recreation use on wildlife, fish and vegetation populations and species. * Evaluate need to implement area closures or restrictions on recreation use or access on federal lands to protect habitats.	Same as Alt B. with the following changes: * Limited emphasis on agency presence and reduced agency patrols. * All trails would be closed to off road vehicle (motorized) access on public lands. * A less comprehensive recreation monitoring program and visitor use survey would be developed and implemented. * Oxbow Park hours of operation would remain the same under discretion of Multnomah County Park management.

	SANDY WILD AND SCENIC RIVER MANAGEMENT ALTERNATIVES			
	ALTERNATIVE A	**ALTERNATIVE B**	**ALTERNATIVE C**	**ALTERNATIVE D**
RECREATION Interpretive Facilities, Services and Public Information	* No new informational materials or signing would be created. * No educational or interpretive efforts facilities would occur beyond that which is currently in place or will be implemented at existing state and county parks or by the ODFW or the TNC.	* Develop a comprehensive interagency interpretation/public information and education plan for the entire river corridor to coordinate efforts of key agencies and organizations (signing, interpretation, interpretive trails, brochures etc.) in cooperation with State Parks, Portland Water Bureau and Multnomah Parks Dept. * Develop interpretive materials concerning the river. * Work with local businesses to provide recreation and interpretive information and displays. * Use limited signing to direct recreationists to public access and recreation sites and inform visitors about private lands, resource protection and fishing. * Provide and post informational signs marking public lands in high use areas and designate private lands near areas used by recreationists (if requested by landowner). * Coordinate interpretation and environmental education efforts between agencies and The Nature Conservancy * Provide cooperative funding for interpretation and volunteer coordinator position with Multnomah County and State Parks and work with Oxbow Park to develop interpretive facilities. * Develop and publish river map/brochure with all parks, access, use ethics information. * Place signs concerning river safety at key locations (all parks and access areas)	* Develop a comprehensive interagency interpretation/public information and education plan for the entire river. * Use limited signing to direct recreationists to public access and recreation sites and inform visitors about private lands, resource protection and fishing.	Same as Alt. B with the following changes: * All interpretive and information signs would be at existing recreation sites and printed information would have limited distribution and not be intended to promote or advertise the area including a kiosk on state and federal river designation and management at Dabney State Park, Dodge Park and Oxbow Park. * State Parks and BLM would continue to pursue support (through co-sponsorship) for the Salmon Festival held each year at Oxbow County Park (good education opportunity for fisheries resources). * Place signs containing river maps at all key access points (Dodge, Oxbow and Dabney).

	SANDY WILD AND SCENIC RIVER MANAGEMENT ALTERNATIVES			
	ALTERNATIVE A	**ALTERNATIVE B**	**ALTERNATIVE C**	**ALTERNATIVE D**
HYDROLOGY Water Quantity	* USGS and PWB flow monitoring at one gauging station location on river below confluence with the Bull Run River. * Wild and Scenic Rivers Act does not effect existing water rights or diminutive domestic uses (single households). * OWRD manages instream flows and allocation through Sandy Basin Plan, sets minimum instream flow guidelines.	* Same as Alt A with: * BLM will develop a monitoring program for flows at two locations on the river. * BLM would work with state agencies to conduct a comprehensive instream flow study for fish and recreation values. * Work with state agencies (OWRD, ODFW, OPRD, DEQ) and counties and PWB by supplying monitoring data and study information to help them determine or reassess instream flow needs to quantify instream water rights requests. * Encourage DEQ, ODFW and State Parks to apply for minimum instream water rights through state processes for fish and recreation values.	Same as Alt. B with: * Develop and/or assist in interpretative programs to promote water conservation in a manner consistent with existing educational programs. * BLM would monitor and participate in issues which have the capacity to impact optimum flows associated with the outstandingly remarkable values and if necessary, actively seek opportunities to accept transfer, receive donations, or purchase existing water rights. * BLM and State Parks review and comment on recent Sandy River water rights applications received by the OWRD.	Same as Alt. C.

	SANDY WILD AND SCENIC RIVER MANAGEMENT ALTERNATIVES			
	ALTERNATIVE A	**ALTERNATIVE B**	**ALTERNATIVE C**	**ALTERNATIVE D**
Water Quality	* No additional monitoring beyond occasional testing done by DEQ.	* Establish a monitoring program for water quality and identify non-point source pollution problems (2 to 3 test sites within corridor). * Use monitoring data to establish water quality parameters and appropriate thresholds. * Establish an action plan outlining notification procedures and mitigation measures if pollution levels are exceeded to insure DEQ and applicable Federal water quality regulations are enforced. * Develop a pesticide/herbicide and chemical applications policy in coordination with DEQ, DOA and ODF and prohibit use of pesticides etc.. in riparian areas on public lands (as in Botany section). * Work with State to have the river designated an outstanding water body of the state.	Same as Alt B with: * Work with county and state agencies on enforcement of existing water quality laws, zoning codes and development regulations. * Review effects and notify agencies as to problems, review of development proposals and submit recommended measures for mitigation. * Encourage DEQ o establish a water quality monitoring site near the mouth of the river. * Allow stream bed and bank work to improve fisheries with ODFW approval and insuring that the natural free-flowing condition of the river is maintained. * Actively pursue and conduct watershed enhancement opportunities through cooperative efforts by federal, state and county agencies and TNC to reduce non-point source pollution including: -- Review grounds and water management practices at major recreation sites and make recommendations. -- Rehabilitate trails and roads to reduce runoff and sediment if necessary. -- Work with ODOT, BLM and county to install sediment traps to collect road/highway sediment, stabilize road cuts/fill and sand/gravel storage. -- Work cooperatively with organizations and agencies such as the Governor's Watershed Enhancement Board (GWEB) to identify and conduct educational and other watershed enhancement activities. -- Develop, publish and distribute a River Landowners Stewardship Handbook to help inform landowners about land use practices that would help improve water quality. -- Develop MOU between Oregon Department of Forestry and BLM to address a process to review harvest plans to ensure protection of water quality.	Same as Alt C.

	SANDY WILD AND SCENIC RIVER MANAGEMENT ALTERNATIVES			
	ALTERNATIVE A	**ALTERNATIVE B**	**ALTERNATIVE C**	**ALTERNATIVE D**
Wetlands, Riparian and Floodplain	* Current county and state land use zoning and regulations.	Same as Alt A.	Same as Alt. A with: * BLM would develop a monitoring program in conjunction with the counties and DSL to establish baseline inventory information (maps) of wetlands and riparian areas and review net change in acreage every five years. * Work with Multnomah County and Clackamas County and state agencies on enforcement of existing regulations by alerting agencies of problems identified through monitoring or inventory. * Seek stream enhancement opportunities and provide technical assistance and funding for projects. * Pursue cooperative and voluntary opportunities for rehabilitation projects. * Develop and provide technical information to landowners/county about appropriate and environmentally sound shoreline engineering techniques in cooperation with other state, county and federal agencies. * Discourage development within the 100 year flood plain. * Work with landowners and county to restore natural hydrological functioning within the floodplain through the provision of technical information and assistance.	Same as Alt. C. with the following change: * Provide only technical assistance for enhancement projects or erosion control efforts on private lands through BLM and DSL.

	SANDY WILD AND SCENIC RIVER MANAGEMENT ALTERNATIVES			
	ALTERNATIVE A	**ALTERNATIVE B**	**ALTERNATIVE C**	**ALTERNATIVE D**
FISH Habitat Management and Monitoring	* BLM would undertake improvement of anadromous fish habitat on federal public lands, emphasizing wild stock production, primarily off-channel habitat along the main stem. * Sub-basin plan and ODFW current guidance and regulations.	Same as Alt. A with: * Conduct habitat inventory on main stem and tributaries and increased species monitoring on tributaries. * Conduct habitat inventories and surveys on major tributary streams such as Gordon and Trout Creeks and off-channel areas (work with landowners and ODFW to accomplish inventory) * Work cooperatively (ODFW, BLM, Multnomah County, Clackamas County, private landowners and organizations) to improve anadromous habitat on the main stem, lower Trout Creek, Gordon Creek and other tributaries. Actions will emphasize hatchery release stock and improvement of the sport fishery. Actions would include: – Increase diversity with log and boulder placement to create pools and hiding cover (off-channel and tributaries). – Protect/enhance and restore side channel habitat. – Work with landowners and DSL where opportunities exist to restore meanders, oxbows and flood channels. – Create alcove/off channel rearing areas. – Restore impacted areas in riparian zones and promote retention of large conifers along the river.	Same as Alt B. with these changes: * All actions emphasize wild stock production. - Coordinate interagency planning and develop management strategy – ODFW, BLM and others would enter into an agreement to coordinate data collection and share inventory data. - Emphasize wild stocks in management strategy, especially those at risk such as late-run Coho. - Identify habitat improvement/restoration opportunities on main stem. Work with ODFW and others to conduct improvements as funds become available. - Conduct habitat improvement/ restoration on major tributary streams and off-channel areas outside of the designated river segment (e.g. Beaver Creek). - Conduct an IFIM study to determine fish flows (minimum/optimum) for summer and fall months (as in Hydrology section). - Investigate in coordination with ODFW, PWB and PGE potential of anadromous fish utilization and rehabilitation in the Bull Run River below the headworks dam through mutual agreement.	* Same as Alt. C.

	SANDY WILD AND SCENIC RIVER MANAGEMENT ALTERNATIVES			
	ALTERNATIVE A	**ALTERNATIVE B**	**ALTERNATIVE C**	**ALTERNATIVE D**
FISH Stock Management and Emphasis	* BLM recommend to ODFW management (fishing regulations etc) to maintain current management with existing mix of hatchery and wild stocks as identified in the Sandy Sub-basin Plan.	* BLM would recommend to ODFW to increase fisheries available for sport fishing consumption by increased release of hatchery stock.	* BLM would recommend to ODFW to undertake actions to maximize the recovery of wild fish populations, which would: – eliminate hatchery releases in the drainage; OR mark hatchery released salmon-steelhead in Sandy Sub-Basin and develop regulations to allow consumptive sport fishing only on hatchery stock; – require catch and release or closure on native and wild stocks; – gather information on remaining native species to determine status, distribution, habitat use and limiting factors. – increase angler education, coordinate educational efforts and programs with local fishing shops and guides. – support recommendations for lower Columbia River to protect salmon/steelhead runs (such as reduction or elimination of gill net fishery, modifying ocean commercial and sport fishing regulations) that would benefit wild fish return to the Sandy.	* BLM would recommend to ODFW management emphasis that would encourage rehabilitation and improved production of native/wild salmonids while providing close to existing levels of consumptive fishing. Including: – public education to encourage catch and release of native/wild stocks; – marking hatchery released salmon/steelhead in Sandy Basin; – maintain existing closures to protect late-run coho, late-run fall chinook; – maintain or enact catch and release regulations for other native species; –limiting releases of anadromous hatchery fish above Marmot Dam to spring chinook and summer steelhead; – encourage use of non-reproducing hatchery stocks; – increase monitoring of fish populations to determine if management actions are effective at enhancing native/wild populations and minimizing competition between native and hatchery stocks.

	SANDY WILD AND SCENIC RIVER MANAGEMENT ALTERNATIVES			
	ALTERNATIVE A	**ALTERNATIVE B**	**ALTERNATIVE C**	**ALTERNATIVE D**
BOTANICAL, ECOLOGICAL and GEOLOGICAL VALUES	* No additional monitoring or inventory would take place other than those initiated under the BLM ACEC management plan or as a result of a proposed development or independent ongoing studies on public land. * Continue to work with colleges and universities to conduct habitat and population monitoring and study.	* Conduct monitoring and inventory of recreation areas and sites throughout the corridor, restrict access if necessary to protect critical areas on public land. * Inventory and monitor island habitats and listed species locations. * Develop or revise the fire management plan for the river corridor in conjunction with counties and state Department of Forestry (ODF). * Establish interpretive displays and information at Oxbow and Dabney Parks (as in recreation /interpretation section).	Same as Alt B with: * Seek opportunities with universities and other organizations to develop a systematic botanical survey of the entire river corridor. * Inventory and monitor riparian and upland habitat types on public lands. * Survey islands and riparian areas during summer and spring. * Monitor species of special concern (Salix fluviatilis) and pursue habitat and population monitoring of Cimicifuga elata. * Provide educational material and technical assistance to landowners concerning the identification and conservation of listed species, wetland and riparian species and their habitats. * Establish agreements with willing landowners to inventory and monitor plants and habitats on private lands. * Protect important listed species/communities on private lands through landowner conservation agreements, willing seller easements or purchase. * Coordinate with the state Department of Agriculture and counties for noxious weed and exotic species control (as mentioned in Water Quality section) and develop policy for manual versus herbicide control of exotic species. * Request that the state place the Sandy River Gorge on the list of unique geologic features.	Same as Alt. C.

	SANDY WILD AND SCENIC RIVER MANAGEMENT ALTERNATIVES			
	ALTERNATIVE A	**ALTERNATIVE B**	**ALTERNATIVE C**	**ALTERNATIVE D**
WILDLIFE	* Old growth conifer forest, riparian areas, and wetlands would be managed under current State and local regulations. No new requirements would be recommended. * ODFW continue current management and hunting regulations for game species. * Osprey nest activity monitoring would continue.	Same as Alt A. with: * Monitor and evaluate recreation use impacts and effects to wildlife (i.e., bald eagle, osprey etc.). Identify critical areas and mitigation measures.	* Close public lands in upper river corridor to motorized vehicle access (as in recreation management section). * Restore habitat for beavers in corridor and along tributaries. Work with ODFW to restrict beaver trapping. * Close and rehabilitate all dispersed campsites in sensitive riparian areas on public lands. * Emphasize protection of winter range along river on public lands and work with landowners to improve habitat/range on private lands. * Provide technical assistance to private landowners for mitigation and enhancement opportunities in sensitive habitat areas. * Evaluate the need to restrict recreational use in the riparian area to maintain travel corridors and reduce disturbance for wildlife during critical seasons. * Work with landowners to limit motorized vehicle access to certain areas to protect winter range and decrease disturbance. * Pursue willing seller easements, cooperative agreements or purchase of private lands as important habitat areas are identified. * Create a river site-specific wildlife observation file compiled from agency, organization and landowner information. * BLM would conduct general wildlife surveys and Osprey nest activity monitoring.	Same as Alt. C. with the following changes: * Dispersed campsites in and adjacent to riparian areas would be evaluated for adverse impacts to wildlife. Close and rehabilitate areas found to have unacceptable impacts. * Willing seller easements, cooperative agreements or purchase of private lands would only be pursued for critically important habitat areas. * Increased management presence and ranger patrol to reduce poaching in the river corridor.

	SANDY WILD AND SCENIC RIVER MANAGEMENT ALTERNATIVES			
	ALTERNATIVE A	**ALTERNATIVE B**	**ALTERNATIVE C**	**ALTERNATIVE D**
Special Status Species and Elk	* No additional monitoring or inventories would be conducted. * BLM would continue to cooperate with U.S. Fish and Wildlife Service concerning TE&S species as required by law. This would precede any management action potentially effecting habitat or populations. * Occurrence of federally protected species suspected to occur (Spotted Owl, Mountain Quail, and Goshawk) will continue to be investigated on federal lands. * A site specific observation file will continue to be maintained for all federal and state listed species. * Elk populations would continue to be monitored and managed by ODFW. Animals may be removed to thin herds. No additional cooperative assistance would be provided. * Surveys and visits would be occasional and incidental to other BLM wildlife monitoring.	Same as Alt. A.	* Inventory and monitoring of special status species by BLM and cooperating agencies will continue. * Pursue establishment of hack site for Peregrine falcons in corridor. * Federally protected (T&E, FC2 and other levels of classifications) species (Bald Eagle, Peregrine Falcon, Red-legged Frog and Harlequin Duck) will be managed under the terms of the Endangered Species Act, but special emphasis will be placed on habitat protection and restoration. * Elk populations would be monitored in cooperation with ODFW and an elk management agreement would be developed in coordination with ODFW, BLM, Multnomah County Parks Services and TNC. * Funding and technical assistance would be provided to landowners and nursery owners to mitigate potential damage to private property and nursery stock (mitigation program could include shared costs of fencing and mitigation for damage shared with ODFW, BLM and landowners on a case-by-case basis).	Same as Alt. C with these changes: * Only technical assistance would be provided to landowners to mitigate elk/deer damage to landowners.

	SANDY WILD AND SCENIC RIVER MANAGEMENT ALTERNATIVES			
	ALTERNATIVE A	**ALTERNATIVE B**	**ALTERNATIVE C**	**ALTERNATIVE D**
CULTURAL RESOURCES	* Complete cultural resource inventories only as result of any proposed action or project that may affect cultural resources on public lands. * Evaluate cultural resources that may be affected by project activities and determine their eligibility to the National Register of Historic Places (NRHP). * Protect cultural resources considered eligible for the NRHP or conserve values. Monitor eligible or unevaluated properties. * Conduct protection methods only if site is threatened, data recovery methods predominate.	Same as Alt. A with: * Conduct inventory for proposed recreation trails or facilities. * Determine National Register of Historic Places (NRHP) eligibility for all identified sites, manage for public use and interpretation. * Develop cultural resource interpretive efforts in conjunction with the comprehensive interpretive plan (see recreation section) at Dodge, Oxbow and Dabney Parks.	Same as Alt. A with: * Conduct a cultural inventory in and along the river corridor on public lands and in cooperation with State Historic Preservation office and county through Goal 5 process. * Compile a regional oral history. * Manage identified NRHP sites for scientific and conservation purposes only. * Interpretation emphasizes cultural resource protection. * Evaluate and determine NRHP eligibility of all sites.	Same as Alt. C with the following changes: * Conduct a cultural inventory in the river corridor on public lands and in cooperation with State Historic Preservation office and county through Goal 5 process. * Collect only specific oral histories for Sandy River areas. * Manage identified NRHP sites for scientific and conservation purposes as well as for interpretation. * Interpretation emphasizes cultural resource protection and cultural history.
VISUAL RESOURCES and LAND USE Timber Harvest	* State Parks reviews and monitors timber harvest proposals on private lands in cooperation with ODF to ensure compliance with Forest Practices Act and Scenic Waterway rules. * BLM lands in corridor would remain administratively withdrawn from timber harvest activities.	Same as Alt. A. with: * Acquire scenic easements on private lands from willing sellers within the corridor considered important for maintaining scenic quality (approx. 300 acres). * Provide technical assistance to private landowners within and adjacent to the river corridor to minimize or reduce visual impacts of proposed timber harvests.	Same as Alt. B with: * Pursue development of MOU with regional Oregon Department of Forestry (DOF) office to establish a federal/state notification and review procedure for proposed harvests on private land within boundaries. BLM could provide assistance to landowners including conservation easements from willing sellers and assistance in harvest layout and design and other conservation measures.	Same as Alt C. (incorporates all actions under Alternatives A, B and C)

	SANDY WILD AND SCENIC RIVER MANAGEMENT ALTERNATIVES			
	ALTERNATIVE A	**ALTERNATIVE B**	**ALTERNATIVE C**	**ALTERNATIVE D**
VISUAL RESOURCES and LAND USE Residential, Community and Recreational Development	* Current state and county land use regulations and zoning in effect. * Present levels of enforcement and development review procedures through State Scenic Waterways Program as addressed in the existing administrative rules for the area of "greatest visual effect" or, the area visible from the river. * Separate environmental analysis is required for any proposed activity or development on public lands to insure public input and an estimate of environmental effects if any.	Same as Alt. A with these changes: * Conduct inventory and monitoring of the river viewshed. * Develop MOU between county, state and federal agencies to coordinate review procedures concerning any proposed development and zoning changes or requests for variance or conditional use permits. * Provide cooperative funding for a new river planning liaison position within the county planning department to review development activity, and providing technical assistance and information (costs shared equally between BLM, State and county). * Develop, publish and distribute a river landowner's stewardship handbook outlining conservation and enhancement techniques and guidelines, Wild and Scenic River information, local/county/state ordinances and regulations, and sources for information and technical assistance. * Work with landowners to enhance natural appearance and create screening of buildings, satellite dishes and other structures. * Work with ODOT, county, PGE, BPA and PWB to improve appearance of roads, road cuts/fill and right-of-ways (transmission or pipe lines) as viewed from river through screening, design considerations and recommendations on maintenance activities. * BLM would assist counties in developing citing standards and development guidelines.	Same as Alt B with these changes: * Pursue willing seller scenic easements with landowners in areas not already covered by State Scenic Waterway boundaries. * Work with county to adopt ordinance to require sellers (and realtors) to notify buyers of private lands within the corridor of federal/state or special county river zoning designations, or scenic regulations and restrictions. * Review county zoning ordinances for consistency with Wild and Scenic River plan and effectiveness in implementation. Make any recommended changes to the area of Significant Environmental Concern (SEC-Multnomah Co.) or Principle River Conservation Area (PRC-Clackamas) zoning ordinances or zoning regulation enforcement. * Provide landowners with additional wetland, riparian, shoreline information and any pertinent and appropriate wildlife, cultural and botanical information. * Encourage PGE to remove signs currently posted along the river or provide signs that meet naturally appearing scenic quality standards. * Establish monitoring program for scenic resources to determine enhancement, maintenance or degradation of scenic values. Compile periodic (5 year) state-of-the-river reports summarizing monitoring results. * Initiate a landowner and interest group committee to act in an advisory capacity to assist in river management decisions, problem identification and day-to-day river stewardship monitoring. * Conduct landowner survey to determine resource needs, management problems and issues, and potential conservation partnerships.	Same as Alt C. with: * Scenic easements purchased as funding allows. * Liaison position dependent on availability of matching funding from counties, BLM and State Parks.

SUMMARY OF ESTIMATED COSTS ASSOCIATED WITH EACH ALTERNATIVE[1]

	RECREATION AND VISUAL RESOURCES			RESOURCE PROTECTION		OTHER INITIAL ADMINISTRATIVE COSTS[2]	TOTAL ONE-TIME COST	ANNUAL MANAGEMENT COST	COSTS TO STATE PARKS AND COUNTIES[3]
	Acquisition and Easements[4]	Facilities, Signing and Information and Education	Monitoring, Enforcement and Staffing[5]	Acquisition, Easements and Incentive Programs	Studies, Inventories, Monitoring, Restoration and Staffing				
ALTERNATIVE B	$1,500,000*	$ 225,000*	$ 195,000* 19 work months (wm)	$ 15,000	Water quality $ 5,000 3 wm Fisheries $ 215,000 3 wm Botany/wildlife $ 10,500 1.5 wm Cultural $ 2,500 1.5 wm	$ 40,000* 3 wm	Acquisition $ 1,500,000 Facilities, studies and restoration $ 525,000	$ 168,000	State Parks $ 45,000 Clackamas $ 15,000 Multnomah $ 15,000
ALTERNATIVE C	$ 25,000	$ 15,000	$ 15,000 9 wm	$ 1,750,000*	Water quality $ 6,000 4 wm Fisheries $ 415,000[6]* 6 wm Botany/wildlife $ 62,000 5 wm Cultural $ 40,000 2 wm	$ 45,000* 4 wm	Acquisition $ 1,775,000 Facilities, studies and restoration $ 492,000	$ 96,000	State Parks $ 15,000 Clackamas $ 35,000 Multnomah $ 35,000
ALTERNATIVE D	$ 750,000*	$ 135,000*	$ 85,000 16 wm	$ 500,000*	Water quality $ 6,000 4 wm Fisheries $ 415,000* 6 wm Botany/wildlife $ 32,000 4 wm Cultural $ 40,000 3 wm	$ 35,000* 2 wm	Acquisition $ 1,250,000 Facilities, studies and restoration $ 617,000	$ 131,000	State Parks $ 35,000 Clackamas $ 15,000 Multnomah $ 15,000

[1] All costs estimated assume only those costs to the federal government and do not estimate possible shared costs to other government agencies. An astorisk (*) denotes federal contribution to shared costs with other federal, state and county agencies. Costs associated with Alternative A are difficult to estimate because they are part of existing budgets and not dedicated solely to the Sandy River corridor. No federal acquisition programs exist currently.

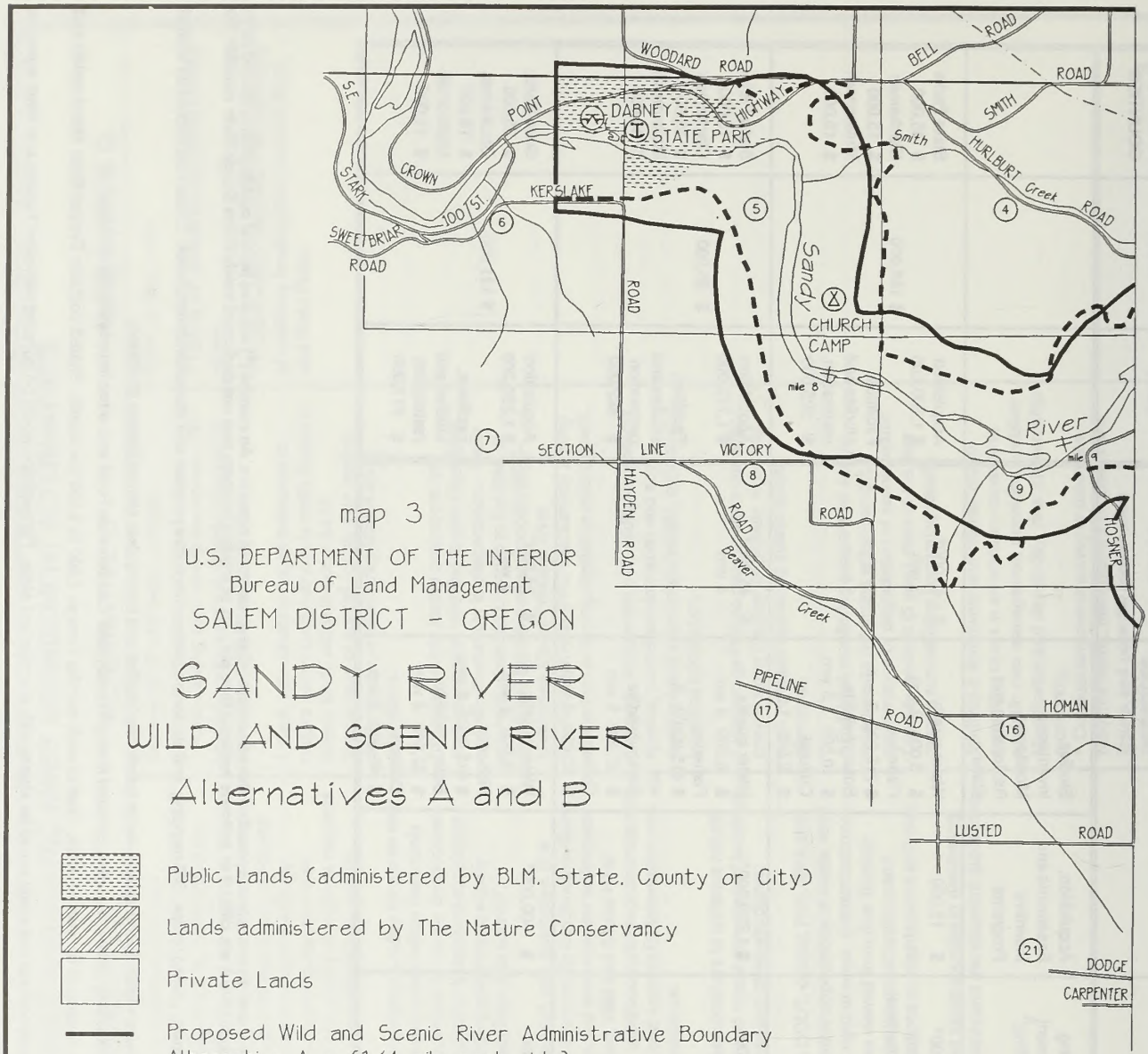
[2] Includes costs to be matched with shared costs for county river planners, zoning review, GIS mapping, and landowner/steward incentive program and stewardship handbook. These costs would be funded for no more than three years.

[3] Estimates include matching contributions toward cost share for Oregon State Patrol cadets, water monitoring/studies and county river planner/liaison positions.

[4] Primarily for scenic/visual resource easements and acquisition from willing sellers. Funding pursued through Land/Water Conservation Fund and other federal/private sources.

[5] All staffing for administration, planning, monitoring and patrols are calculated by work months. Cost of work months average 2,500 to 3,500 per month. Shared costs for Oregon State Patrol cadets and contracts for recreation studies are included in cost estimate.

[6] Over half of this amount reflects the proposed IFIM study. Additional costs of any study would be shared with counties and state. Partnerships would be pursued with other Federal and State agencies to fund habitat restoration/enhancement costs.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BELL ROAD
ROAD
SMITH
HURLBURT Creek ROAD
DABNEY STATE PARK
HIGHWAY
POINT
S.E. STARK
CROWN
100TH
KERSLAKE
SWEETBRIAR ROAD
Smith
Sandy
CHURCH CAMP
mile 8
River
mile 9
SECTION LINE
VICTORY
HAYDEN ROAD
ROAD
Beaver Creek
HOSNER
PIPELINE ROAD
HOMAN
LUSTED ROAD
DODGE
CARPENTER
map 3
U.S. DEPARTMENT OF THE INTERIOR
Bureau of Land Management
SALEM DISTRICT - OREGON
SANDY RIVER
WILD AND SCENIC RIVER
Alternatives A and B
Public Lands (administered by BLM, State, County or City)
Lands administered by The Nature Conservancy
Private Lands
Proposed Wild and Scenic River Administrative Boundary Alternative A - (1/4 mile each side)
Proposed Wild and Scenic River Administrative Boundary (Alternative B)
Sandy River - designated Recreational River segment
Sandy River - designated Scenic River segment
Existing boat ramp / launch area
Existing park or picnic area
Existing private summer camp
Existing powerline
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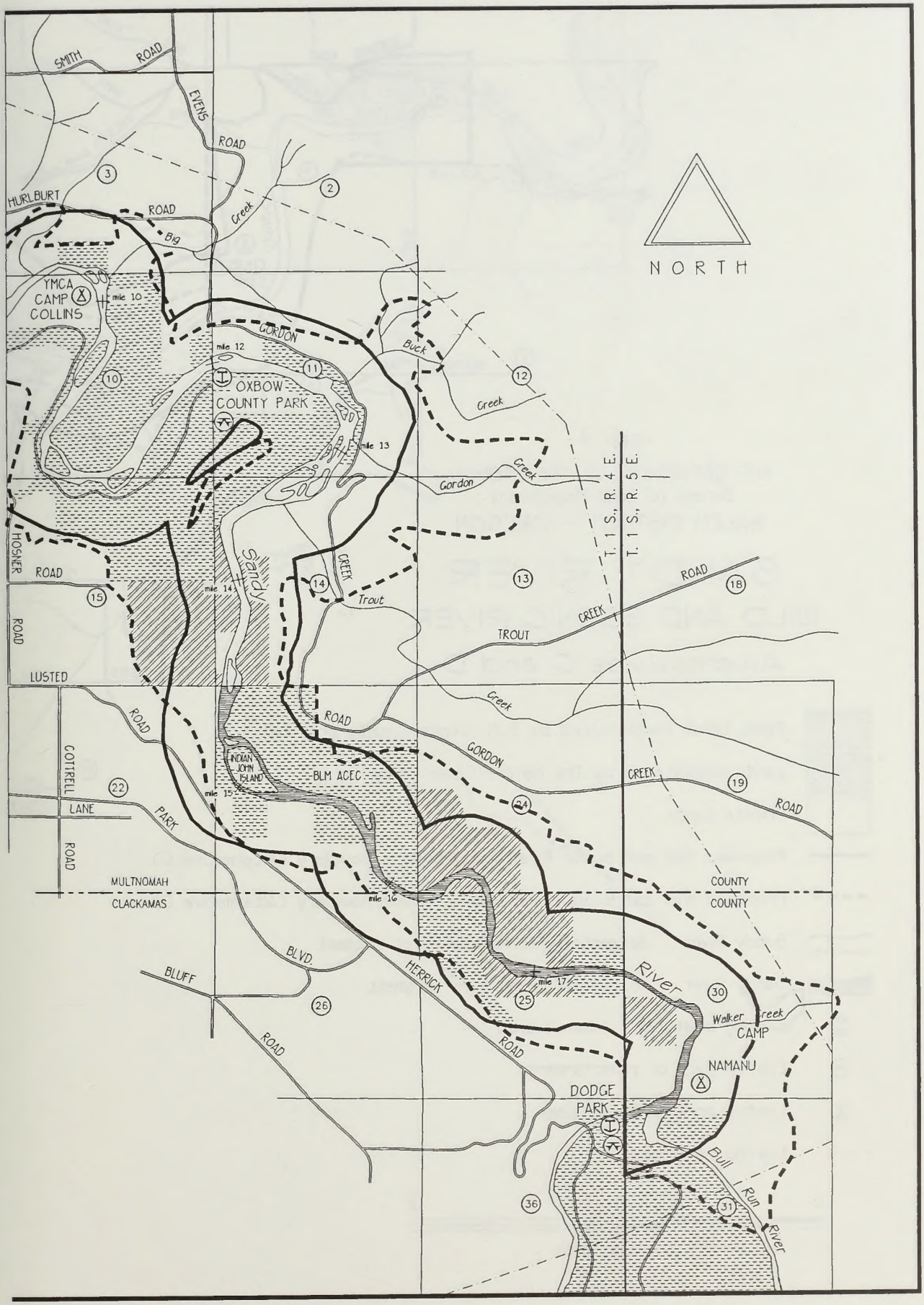
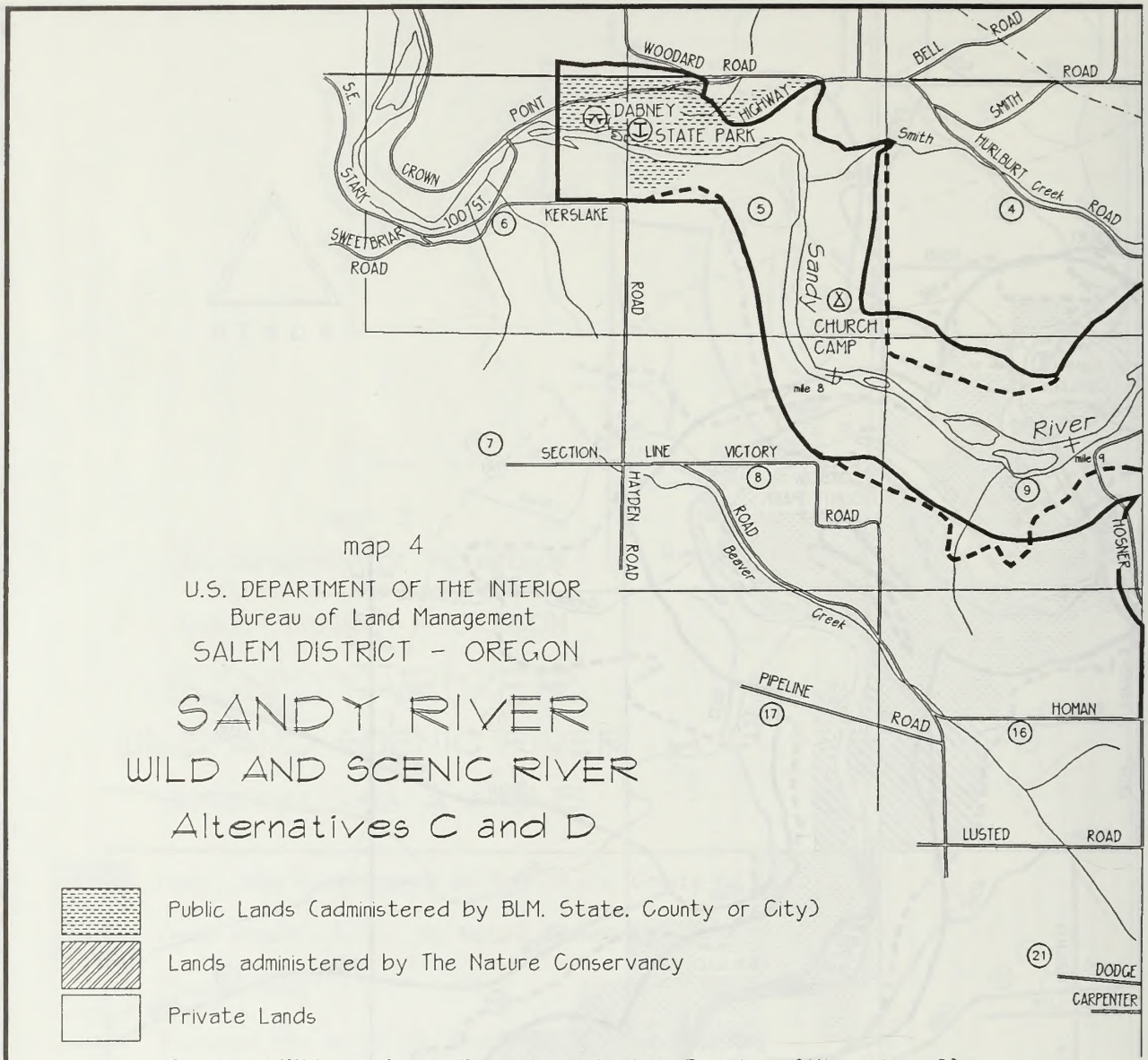
1
2
scale in miles


SMITH ROAD
EVENS ROAD
HURLBURT ROAD
Big Creek
YMCA CAMP COLLINS
mile 10
GORDON
mile 12
OXBOW COUNTY PARK
mile 13
Buck Creek
Gordon Creek
NORTH
T. 1 S., R. 4 E.
T. 1 S., R. 5 E.
HOSNER ROAD
mile 14
Sandy
CREEK
Trout
TROUT CREEK ROAD
LUSTED ROAD
ROAD
GORDON CREEK
INDIAN JOHN ISLAND
BLM ACEC
mile 15
GOTTRELL ROAD
LANE
PARK
MULTNOMAH
CLACKAMAS
COUNTY
COUNTY
mile 16
BLVD
BLUFF
ROAD
HERRICK ROAD
mile 17
River
Walker Creek
CAMP NAMANU
DODGE PARK
Bull Run River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ROAD
HOMAN
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DODGE
CARPENTER
map 4
U.S. DEPARTMENT OF THE INTERIOR
Bureau of Land Management
SALEM DISTRICT - OREGON
SANDY RIVER
WILD AND SCENIC RIVER
Alternatives C and D
Public Lands (administered by BLM, State, County or City)
Lands administered by The Nature Conservancy
Private Lands
Proposed Wild and Scenic River Administrative Boundary (Alternative C)
Proposed Wild and Scenic River Administrative Boundary (Alternative D)
Sandy River - designated Recreational River segment
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Existing boat ramp / launch area
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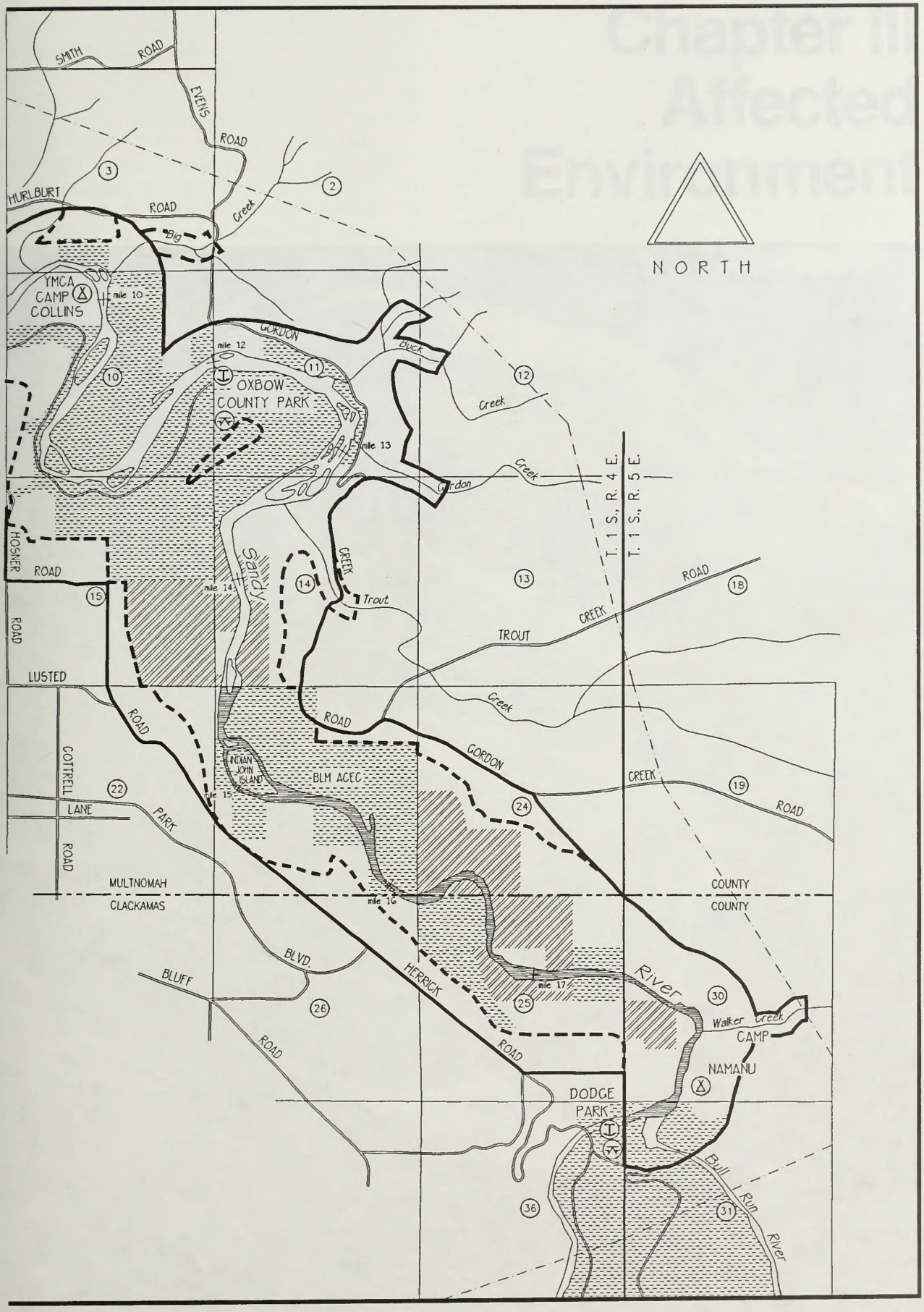
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River
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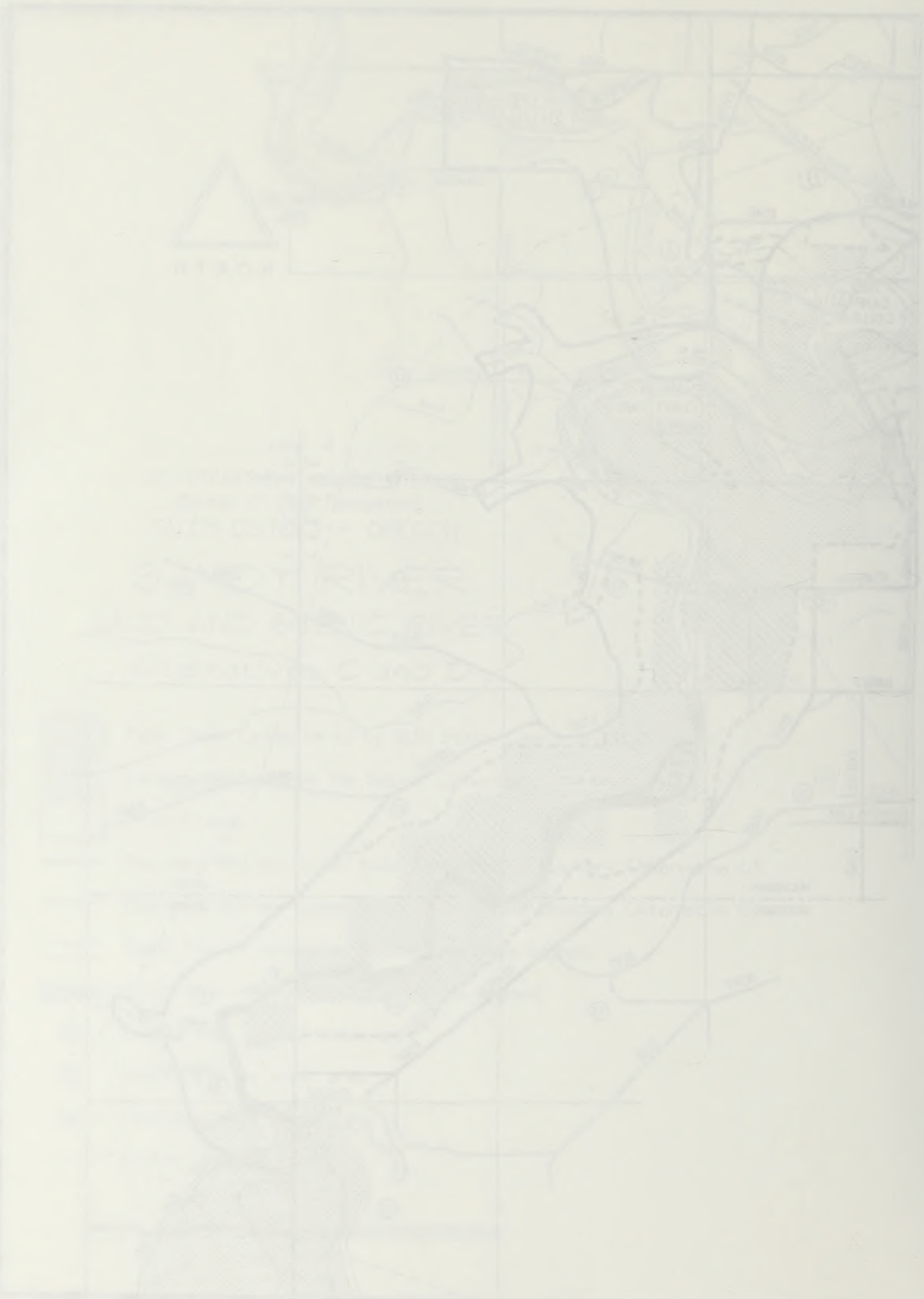
DODGE PARK
Bull Run River



Chapter III
Affected Environment

Introduction

This chapter describes the character and resources of the designated segment of the Sandy River. The chapter first describes the regional setting and history of the Sandy River. It then provides an overview of the physical, biological, social and economic resources of the river corridor. It primarily describes resources within 1/4 mile of each side of the river but is not expressly limited to that area. It also discusses land ownership patterns, land uses and the existing regulations governing land uses. Current conditions, as well as exiting trends are described to acquaint the reader with the area and its attributes. The chapter provides a basis from which to assess the consequences of various management alternatives evaluated in Chapter IV.

Regional Setting and River Description

The Sandy River is located near Portland, Oregon on the west side of the Cascade Range, a region exhibiting significant faunal, floral, and topographic diversity. The river originates on the glacial and snow-covered flanks of Mt. Hood, at 11,235 feet Oregon's highest mountain. From Mt. Hood, the river flows 55 miles west and north to its confluence with the Columbia River near Troutdale, Oregon. In this relatively short distance, the river descends over 6,000 feet, traveling through alpine meadows, steep and densely forested canyons, and deep gorges before winding its way to the Columbia. The Sandy meets the Columbia at the west end of the Columbia River Gorge, an unusual and spectacular physiographic feature that has had a major effect on biotic diversity of the area. Carving a near-sea level route through the Cascade Range, the Columbia continues to be a primary factor in the area's rich natural and cultural history.

The wet coastal or maritime climate of western Oregon is characterized by mild temperatures, wet winters, a long frost-free period, and narrow daily fluctuations in temperature. Annual precipitation in the Sandy drainage ranges from 40 inches near the mouth to 110 inches near its source with the heaviest rainfall occurring in the late fall and early winter. The river area incorporates portions of two major physiographic zones, the Willamette Valley and Western Cascades regions. This unique physiographic setting supports many endemic and relict populations of plants as well as important habitat for numerous animal species (Franklin and Dyrness 1973).

The Sandy River and its tributaries drain an area of 508 square miles, constituting the smallest major river basin in the state. It is the only major river on the west side of the Cascades to be glacial in origin and character. Major tributaries include the Bull Run River on the north, and the Zigzag and Salmon Rivers on the south side of the main stem. The Bull Run River has its headwaters in the high mountain lakes northwest of Mt. Hood and is Portland's major municipal water source. The Salmon River begins on the south side of Mt. Hood near Timberline Lodge and the entire river is designated as a component of the National Wild and Scenic Rivers System.

The upper reaches of the Sandy River and its tributaries flow through rolling mountainous terrain falling 1,600 feet in the first 13 miles. The upper river is characterized by narrow chutes and boulder-choked channels. The middle portion of the river from the confluence of the Zigzag River (River Mile 42) to Marmot Dam (RM 30), flows through a wider river valley with a moderate gradient. Below Marmot Dam the river descends into narrow box canyons and incised bedrock gorges with a moderate to steep gradient of over 40 feet per mile to an elevation of 200 feet at the mouth of the Bull Run River near Dodge Park (RM 18.5).

The lower 12.5-mile designated segment lies 6 miles upstream from the river's mouth and includes the regionally known Sandy River Gorge. This 800-foot deep gorge is heavily forested and, although considerably shorter in length, exhibits characteristics similar to the more famous Columbia River Gorge. Within the gorge, the river flows past low elevation old growth forests, riparian woodlands and fern and moss-laden cliffs. At the gorge's lower end, the Sandy meanders through two large "oxbows" and begins to widen, having large gravel bars, shallow riffles and fewer rapids. The river below Dabney Park has a low gradient and is surrounded by rolling hills and pastures. It is the accumulation of sand and sediment along this lower reach from which the river gets its name.

Historical Background

The Columbia River plateau has been occupied by people for at least 11,000 years. Evidence exists along the Sandy River suggesting that prehistoric Indian people lived in and used this area as well. The lands of the Sandy River area were part of a much larger territory inhabited by the Chinook people at the time of European/Euro-American contact.

Lewis and Clark named this river the Quicksand River in 1805 due to the accumulation of sand and silt at its mouth. The area was probably explored and used by fur trappers from the nearby Fort Vancouver, but no records of this use have been found. By 1845, the name, Quicksand River, had been shortened to the Sandy River by settlers entering the area. The remaining Indians, relatively few in number by this time, were moved to reservations by 1857.

While the nearby Willamette Valley and lower Sandy lands were being settled, the isolation and rugged topography of the Sandy River Gorge country discouraged homesteading. In 1866-69, unclaimed alternate sections of land were granted to the Oregon & California Railroad Company (O & C) throughout western Oregon, generally within 30 miles of the proposed RR right-of-way. Some O & C grant lands were in the Sandy River Gorge. Homesteaders entered the Sandy River Gorge, making the first claims in the late 1870's. Other settlers bought land from the O & C railroad company. Unsold O & C lands were revested to the federal government in 1916, due to violations of the terms of the original grant. These lands are now managed by the BLM.

A number of economic and recreational activities have taken place along and in the Sandy Gorge through the historic period. In addition to farming and grazing activities initiated by homesteaders in the 1870's, logging and more importantly, log driving, started in 1895. Log driving consisted of floating logs, usually processed as railroad ties, down the Sandy to Troutdale. The last drives occurred in 1925-26. Smelt fishing, hunting, trapping, firewood cutting, and berry picking also started early along the Sandy.

Gravel quarrying in the Sandy River started in the 1920's and continued into the 1950's. Another economic activity in the Sandy River Gorge, spurred by Prohibition, was the operation of illegal stills and the area gained local repute for this business.

The Sandy River Rail Line was built in 1909 as a means of supply for the construction of Bull Run water projects and remained in service until 1931 to haul lumber products, sheep, and mail between Portland and Linneman. Recreationists used the line for transportation to Dodge Park to picnic, fish, and dance at the Dodge Park pavilion. Many of the recreation activities started before the turn-of-the-century are activities enjoyed by Sandy River visitors and residents today.

Socio-Economic Resources

Population: The 12.5 mile stretch of the Sandy River runs through a two-county rural area. The majority of the designated section is located in Multnomah County, with approximately 1.3 miles of the upper river flowing through Clackamas County. Although no data exists for this specific corridor, data on Clackamas and Multnomah counties may give some indication of general trends for the area. In addition, Census tract #105 - the area in Multnomah County east of the Sandy River - may be used to generate information on the residents of the Sandy River Gorge area.

Recently released 1990 Census data show a 0.6 percent population increase from 1980 in the area east of the Sandy River. During this period there was a 1.6 percent increase in housing units. This indicates that population growth is stabilizing after the rapid increase that occurred in Oregon in the 1970's. A high quality of life, a temperate climate and numerous job opportunities in the Portland Metropolitan area led to this substantial population increase.

Between 1970 and 1980 Clackamas County grew by 45.7 percent, and the city of Sandy, located in Clackamas County, experienced an 88.1 percent increase in population (Oregon Employment Division, 1992). During this same time frame Multnomah County grew by 1.4 percent, while the city of Portland, located largely in Multnomah County, decreased in population by 3.1 percent. This indicates that the growth of population during this period was entirely concentrated in the bedroom communities and unincorporated areas that surround the city of Portland.

The population is expected to increase by 500,000 by the year 2010 in the Portland metropolitan region.

A recession in the early 1980's brought about a decline in the annual rate of population growth as compared to the 1970's. Clackamas County expanded by 15.3 percent, while Multnomah County increased by 3.8 percent. Population trends returned to pre-recession patterns in the mid to late 1980's as a result of Portland's strong economy in 1988-1990 (Oregon Employment Division, 1990).

Social Environment and Demographics: In 1985, the median age of residents in the area east of the Sandy River was 31.7, while in 1989 the median age rose to 34.4. In 1980, children age 0-17 comprised 35 percent of the population, however this figure dropped to 28.7 percent in 1990. Figures indicate a decline in the number of school age children, consistent with a national decline in elementary and high school enroll-

ment during the same period (Timko, 1991). Trends suggest that the residents are getting older, with the majority falling into the 35 to 54 age category.

The 1980 Census data reveals that over 83.8 percent of the residents were high school graduates, 22.1 percent had attended some college, and 17 percent were college graduates.

The mean household income of the residents east of the Sandy was $34,900 in 1980 (Timko, 1991). Household income is now a major indicator of the general level of economic well being of an area, as an increasing number of families are supported by two wage earners. Between 1970 and 1980 the female labor force in Clackamas and Multnomah Counties jumped by 9-11 percentage points (Oregon Employment Division, 1992).

Past trends have indicated that Clackamas county has had higher median family incomes than many other counties in the state. This is largely due to the fact that this county serves as a bedroom community for the city of Portland. Residents in the area east of the Sandy have a mean travel time to work of 24.8 minutes, with 34 percent of the residents commuting 30-59 minutes (1980 Census). These figures are representative of the fact that many residents commute to work in the Portland metropolitan area.

Economic Environment: The top industries, by employment, are as follows: professional and related services 25%, manufacturing 19%, and retail trade 16%. Together, these three industries constitute 60% of the employment of the residents. It is important to note that this information is based upon people who live in, but do not necessarily work in, the area east of the Sandy River.

The data on employment by industry in the Sandy River area is compatible with the overall industry earnings for Clackamas County in 1989. Services, the top earning industry, accounted for 23.0 percent of earnings. Manufacturing accounted for 14.8 percent, and retail trade 14.1 percent(Oregon Employment Division, 1992). The fastest growing industry in Clackamas was wholesale trade, which increased by 19.6 percent. In Multnomah County the fastest growing industry in 1989 was services, which increased 12.3 percent.

Over one-quarter of the residents are employed in executive and professional fields. Many of these residents commute, as the Sandy River Gorge area does not provide a substantial number of employment opportunities in these professions. Other top occupations included: precision production and repair occupations 16.4%, services 14.4%, administrative support 13.6%, and farming, forestry, and fishing 3.0% (1980 Census).

Land Use and Ownership

The interim 1/2-mile Sandy Wild and Scenic River corridor contains about 4,000 acres of land. The interim Federal boundaries are the same as the State Scenic Waterway boundaries. About 43 percent (1,700 acres) of the land within the 1/2-mile corridor is currently in public ownership administered by state, county or federal governments (figure 1). Private organizations including The Nature Conservancy and three summer camps own about 750 acres of land between them within the corridor. The remainder, or about 1,550 acres, are privately owned. These figures were estimated from Multnomah and Clackamas County assessor records (1990) and zoning maps and are rounded to whole numbers.

Public lands within the corridor are generally reserved for recreation and conservation of natural values. Over 400 acres of BLM-administered lands are protected as an Area of Critical Environmental Concern (ACEC). The 1000-acre Oxbow Park is a combination of county, state and federal lands and is managed by Multnomah County Parks Services Division. Dodge Park, incorporating about 40 acres on the upper end of the segment is owned and operated by the Portland Water Bureau. Dabney State Park (136 acres) is managed by the Oregon State Parks and Recreation Department.

Private lands within the corridor are primarily large tax lots of 10 to 100 acres zoned for multiple use forestry and agriculture with some rural residential development areas. Small residential/agricultural lots of ten acres or less account for about 25 percent of the land within the corridor.

Current zoning ordinances recognize the natural significance of the Sandy River corridor and both Clackamas and Multnomah Counties have created river overlay zones to enhance protection of natural values. However, all land use development proposals within the State Scenic Waterway (1/4 mile of the river) are referred to State Parks for review. Approximately 100 separate landowners including private businesses or organizations hold title to lands along the river.

The largest private landowner in the corridor is The Nature Conservancy with about 450 acres. The Nature Conservancy lands are open to the public and protected from development.

The entire 12.5-mile State Scenic Waterway is managed by the Scenic Waterways Program of the Oregon State Parks and Recreation Department. Proposals for development and land use changes on private lands must be reviewed by the Scenic Waterways Program for visual and conservation considerations before they are initiated.

The majority of the smaller residential/recreational parcels have already been developed, others are currently unsuitable for building due to floodplain, wetland or slope restrictions. Approximately 165 homes, cabins, barns and outbuildings exist within the interim boundaries along the lower river. Approximately half to two-thirds of these buildings are assumed to be houses or the primary residences of the owner. Much of the development within the corridor occurs in neighborhoods that include the Lusted Road area, the Oxbow Parkway area and the Crown Point Highway area. None of these areas have direct river frontage on the lower river. There are very few houses directly on the river.

Timber, Agriculture and Grazing

The BLM-administered lands are managed for recreation, botanical and wildlife purposes. BLM lands along the Sandy have been administratively withdrawn from timber harvest and are designated as an ACEC or under Recreation and Public Purpose lease as part of Oxbow Park.

County lands within the interim boundaries are generally unsuitable for timber harvest due to steep terrain, riparian habitat and a predominance of hardwood species. About 1,950 acres of private land is zoned for timber management or agriculture use within the lower river boundaries. However, 750 acres belong to The Nature Conservancy and summer camps. Therefore, less than 1200 acres or 1/4 of the corridor is available for timber harvest and agriculture.

Most of the acreage zoned for timber is unsuitable or unavailable according to state forestry practices guidelines. Private land timber harvest activities are reviewed by the Oregon Department of Forestry and are allowed within the Wild and Scenic River corridor. An average 100' buffer is the guideline along the Sandy River.

Currently very little of the land within the corridor on the lower river is utilized for agriculture or grazing purposes. About 225 acres (6%) within the 1/4 mile boundary are zoned for agriculture. Most of the agricultural land is used as pasture or for berry or nursery production.

Private Land Use by Acres Zoned Within the Sandy River Corridor

Rural Residential	Agricultural	Forestry	Total Private
350 ac.	275 ac.	1675 ac.*	2300 ac.

(* includes 750 acres of TNC and camps)

Navigability and State Ownership of the River Bed and Banks

State ownership of the beds of navigable bodies of water was granted to Oregon in 1859 as an incidence of statehood and is an inherent attribute of state sovereignty protected by the U.S. Constitution. The beds of non-navigable bodies of water remained in the ownership of the United States or its grantees. The navigability of the Sandy River from its mouth (river mile 0) to its headwaters (RM 55) has not been established. Currently, both the state and federal government, and in some cases private property owners, claim ownership of the river's bed and bank. This river plan does not propose to address the navigability issue for any part of the Sandy River. Rather, this river plan is intended to provide a management philosophy and direction for the designated segment of the river.

Under state law, the Division of State Lands (DSL) is responsible for the management of the beds and banks of navigable waters (ORS 274.005-274.590). DSL is the administrative arm of the State Land Board (the Board), composed of the Governor, Secretary of State, and State Treasurer. Under constitutional and statutory guidelines, the Board is responsible for managing the assets of the Common School Fund. These assets include the beds and banks of Oregon's navigable waterways and are to be managed for the greatest benefit of the people of this state, consistent with the conservation of this resource under sound techniques of land management. Protection of public trust values of navigation, fisheries, and public recreation are of paramount importance.

The original federal test for determining navigability was established in the Daniel Ball case over 100 years ago. This U.S. Supreme Court admiralty case clarified that rivers "are navigable in fact when they are used, or susceptible of being used, in their ordinary condition, as highways of commerce..." Interpreting this requirement, subsequent court decisions have adopted this test for title purposes and have ruled that a body of water is navigable if it was capable of use, at the time

of statehood, as a public highway for transporting goods or for travel in the customary modes of trade and travel on water.

DSL has determined that there is sufficient evidence to support a claim of navigability and state ownership for the bed and banks of the Sandy River from its mouth to river mile 37.5 near Brightwood, OR. The position of the BLM is that the navigability of the river has not been established.

For purposes of managing the above portion of this river (where navigability has not been established), any non-federal activities or land uses such as new utility or transportation corridors and boat ramps or other similar facilities that impose into or cross a waterway below ordinary high water will require an easement from the State Land Board. Existing non-federal facilities will require an easement at such time as they undergo major structural alteration, replacement, or relocation. In addition, removal of sand and gravel requires a royalty lease and any non-federal use that occupies any area of submerged or submersible land requires a waterway lease.

Further, the DSL also administers the State's Removal-Fill Law which protects Oregon's waterways from uncontrolled alteration. The law requires a permit for fill or removal of more than 50 cubic yards of material within the State's waterways. The permit review process involves coordination with the natural resource and land use agencies from the local through the federal levels. Within Oregon State Scenic Waterways, special authorization is needed from the Board and DSL for "any alteration of the beds and banks" of the Sandy River within the designated segment.

Fisheries

The Sandy River system exhibits a relatively large number of anadromous fish species in comparison with other rivers in the region and other major tributaries of the Columbia River. This species diversity is due, in part, to the river's location on the Columbia River. The mouth of the Sandy lies downstream from the large Columbia River dams and water projects which cause impacts on anadromous fish species and populations. The importance of the Sandy River's sport fishery is illustrated by the average winter steelhead sport catch for run years 1975 - 1984 of over 8,000 fish, the largest winter steelhead catch of Oregon's Columbia River tributaries.

Habitat: Fish habitat for anadromous and resident fish in the Sandy River system is considered good to excellent. The cold water and good spawning gravels of the river provide ideal conditions for anadromous fish species.

Substrates of gravel and cobble of relatively large size make up the river bed throughout the designated 12.5-mile river segment providing good spawning habitat for chinook and winter steelhead. The lower river, including the designated segment, also provides good rearing habitat for a number of species. Tributaries to the main stem, including Gordon and Trout Creeks, provide important additional spawning habitat.

Impoundments: There are two major impoundments and a small diversion dam on the Bull Run River that create reservoirs and block migration of anadromous fish. Municipal supplies for smaller communities such as Sandy, Troutdale, and Corbett also come from the basin.

Marmot Dam, at River Mile 30 on the Sandy River main stem is equipped with a fish ladder for returning adults and with screens to aid in the downstream migration of smolts.

Hatcheries: Presently, two hatcheries operate and are producing fish in the basin. However, one of the hatcheries is strictly for educational and not production purposes (Mount Hood Community College). The Sandy River hatchery (located 1.5 miles north of the town of Sandy just upstream from the mouth of Cedar Creek) produces strictly early-run coho salmon, with brood stock from adult hatchery returns.

Anadromous fish: Estimates of annual adult fish returns into the Sandy River system are: 9,600 winter steelhead; 4,000-6,000 summer steelhead; 1,200 fall chinook; 1,300 spring chinook; and 12,840 early winter coho. Numbers of late winter coho are unknown (Sub-basin Plan 1990; USFS 1990). Runs of chum salmon and sea-run cutthroat trout may still exist in the lower Sandy River, but run sizes are unknown. Pacific lamprey and Columbia River smelt are also anadromous species known to inhabit the Sandy River for some portion of their life cycle.

Winter steelhead are probably the most popular game fish on the Sandy River. However, catches of hatchery fish such as coho, spring chinook and winter and summer steelhead catch exceed the wild catch by a ratio of 3 to 1. Angling regulations are currently in effect which attempt to protect the native run, while allowing harvest of the hatchery-produced fish.

Summer steelhead are an introduced race in the basin. This has created a new spring and summer steelhead catch that is becoming popular with anglers. The summer steelhead stocked in the basin are not intended to reproduce naturally but some reproduction does occur. Dam counts for run years 1977 - 1987 averaged over 3,200 fish. Summer steelhead are managed for maximum harvest, not for escapement and natural production.

Two stocks of fall chinook are found in the Sandy River. The early spawning tule stock and the native Sandy River late-spawning stock. The tule stock was developed into a Lower Columbia River Hatchery stock which is present in the Sandy as strays from other systems and as a remnant run from hatchery releases prior to 1977. No fall chinook have been released in the Sandy system since 1976. The Gordon and Trout Creek tributaries (on the designated segment) provide good spawning habitat. The native Sandy stock and the tule stock both reproduce naturally in the lower Sandy. Data are not available for run sizes, escapement, harvest or juvenile survival rates. Management strategies emphasize natural production and protection of the native late run of fall chinook.

Spring chinook were native to the Sandy River and were collected as brood stock for the first hatcheries on the Sandy at the turn of the century. Since the 1960's, natural production of spring chinook has been supplemented by hatchery releases of Willamette stock smolts and pre-smolts. Spring chinook are caught by anglers in the lower main stem of the Sandy. Management of spring chinook calls for current hatchery releases, continued habitat improvements in the upper basin and acclimation of a portion of the hatchery smolts released in the basin.

Early-returning coho salmon in the Sandy are produced at the Sandy Hatchery, and are managed as a hatchery stock. They also reproduce naturally in numerous tributaries and the upper main stem. Wild late-run coho are native to small streams in the subbasin. Current management of coho in the subbasin is intended to provide adults for various sport and commercial fisheries. Coho spawn mainly above the mouth of the Salmon River, and use the lower main stem (designated segment) primarily for rearing habitat.

A remnant run of chum salmon has been reported in the lower Sandy River, but little is known about the size or timing of the run.

Most perennial tributaries to the Sandy River containing cutthroat trout populations have the potential to produce sea-run cutthroat trout.

Resident fish: A number of resident warm and cold water species inhabit the river. The warm water species include northern chiselmouth, dace, carp, largemouth bass, crappie, bluegill, northern squawfish and threespine stickleback. These are found near the mouth where the warmer waters of the Columbia River mix with the Sandy. Cold water resident suckers and mountain whitefish are found in the main stem Sandy, while sculpins are found throughout the basin.

Angling: Fishing, from both bank and boats, especially for anadromous fish, is an extremely important recreational activity. Due to the river's proximity to the Portland metropolitan area, it receives very high fishing use during certain times of the year. The Sandy is widely recognized as one of Oregon's best winter and summer steelhead fisheries in the state and one of the best spring chinook fisheries within the Columbia Basin. The lower Sandy River is also used for smelt dipping when runs occur.

Recreation

The river's proximity to the northwest's second largest population center combined with its near pristine condition, state restrictions on motorized boating activity, easily accessible parks and river-oriented facilities make it a unique recreational resource within the region. The river-related recreational values provided by the Sandy River have long been recognized as an integral component of the region's recreational opportunity spectrum. From a national perspective, very few rivers in the country offer a comparable pristine and natural setting so close to a major urban center.

The recreational importance of this segment of the Sandy River is supported by numerous documents, studies and guidebooks. Federal, state and county agencies, including the USFS Columbia River Gorge National Scenic Area, Oregon Parks and Recreation Department, the Oregon Department of Fish and Wildlife, Northwest Power Planning Council, Multnomah and Clackamas Counties' Parks and Recreation Departments, and various tourism and visitor service bureaus have long touted the recreational values and regional importance of the Sandy River Gorge and vicinity. The existence of several large youth camps, river-oriented special events/ festivals and consistently high visitor use estimates also demonstrate the area's popularity and importance as a regional recreation resource.

The river corridor also offers regionally and nationally significant opportunities for nature study, research, and natural history interpretation. The area has been used

extensively by local organizations, schools and colleges for study and research. River corridor lands have long been recognized for their botanical and wildlife habitat significance. The Nature Conservancy has acquired, and the Bureau of Land Management has set aside, lands along the river to protect natural areas and to provide opportunities to study and enjoy the river's values.

Recreational settings and experiences: The entire 12.5-mile designated portion of the river offers important recreation opportunities. The upper segment of the designated reach, from Dodge Park to Indian John Island, is classified under the Wild and Scenic Rivers Act as a *scenic* river due to its limited development, and natural and pristine qualities. The segment below Indian John Island to Dabney State Park is classified as *recreational* due to its somewhat greater level of development and access. The deep gorge, high cliffs, rapids, forests, and natural shoreline enhance the river's scenery and primitive character. This natural and largely unmodified setting makes possible a wide range of recreation opportunities. The area offers high quality primitive and semi-primitive non-motorized recreation opportunities as well as motorized, roaded natural recreation opportunities at several locations.

Access and Facilities: The river in the upper scenic classified segment is accessible, for the most part, only by foot or boat. Public road access to the river in this upper section is limited to Dodge Park, at the confluence of the Bull Run and Sandy Rivers. The park area is owned and operated by the Portland Water Bureau. The 342-acre tract (40-50 acres are within the W&SR corridor) includes lands surrounding the confluence and marks the upstream end of the designated river segment. The park's facilities are located in a wooded area on the east side of the river downstream from the bridge. Facilities include picnic tables, day use parking areas, rest rooms, several historic stone buildings and a sandy beach which doubles for swimming and launching of rafts and kayaks. There is no developed or improved boat ramp and launch area. The area and facilities have had a sporadic history of maintenance and management (Ciecko 1990; Lilly 1990).

The recreational classified segment of the river, below Indian John Island, is accessible by road at several locations. About six miles below Dodge Park is Oxbow Regional Park. It is managed by Multnomah County on land owned by the county, Oregon Department of Fish and Wildlife, and the Bureau of Land Management. This 1,000-acre park and natural area offers a wide range of recreation opportunities, programs and facilities (Ciecko 1990). The park has several picnic areas and shelters, over 15 miles of hiking, biking and horseback riding trails, an improved boat ramp, a 45-unit campground and three group campsites. Contiguous park lands provide extensive public access to the river for about a three mile segment (see map on p.13). Multnomah County Park Services Division offers a number of interpretive and nature programs at Oxbow Park. It also conducts several regional special events each year, including the popular Salmon Festival in the fall.

The Oregon State Parks and Recreation Department manages Dabney State Park at the downstream end of the designated segment. The park has 136 forested acres with parking, sanitation and picnic facilities as well as an informal boat launch and recovery area. In addition, the Historic Columbia River Highway crosses the river at the Stark Street Bridge and parallels the Sandy on the east bank for about 1/2 mile, passing through Dabney State Park.

A number of privately owned areas within the river corridor also offer extensive public outdoor recreation opportunities. Three privately owned camps offer services and facilities to several organizations and user groups with some occasionally open to the public. These include: Camp Namanu for Campfire Girls and Boys, just downstream from Dodge Park; Camp Collins, owned and operated by the Portland area YMCA, adjacent to Oxbow Park; and the Greek Orthodox Church Camp located about one mile downstream from Camp Collins. In addition, several natural areas of the Sandy River Gorge have been purchased and protected by The Nature Conservancy (TNC). TNC owns over 450 acres of land in 6 parcels. Combined with adjacent BLM lands (the 400-acre Area of Critical Environmental Concern), TNC parcels account for about 5 miles of shoreline. These areas are used for nature study and scientific research and are open to the public by foot access only (see botanical assessment section).

The river is considered by the State of Oregon to be navigable to Brightwood (see discussion in Land Use and Ownership section). Public access to the bed and banks below the ordinary high water mark is allowed as that area is considered by the State to be public land owned by the state and administered by the Oregon Division of State Lands. Therefore, in the opinion of the State, anglers and others have the right of access along the river as long as they remain on the river bed or banks.

Opportunities and activities: Natural and scenic resources of the Sandy River Gorge highlight opportunities for many kinds of dispersed recreational activities. Camps, parks and public developments along the river offer additional opportunities for group, organized sports and other facility-based activities. Popular

dispersed recreation activities include bank and boat fishing, river boating/floating, hiking, nature study, horseback riding, bicycling, hunting, swimming, jogging, picnicking, camping, sightseeing, pleasure driving, and others. Facility-based activities include recreational vehicle camping, group sports and picnicking, special events and festivals, and summer camp activities.

The corridor and river are also heavily used for outdoor and environmental education experiences. The three youth camps, parks and natural areas are visited by a variety of public and private schools and organizations throughout the year for field trips, environmental studies and personal growth programs (Ciecko 1990; Phelps 1990; Kriara 1990; Pugh and Myers 1990).

Recreation Use: Comprehensive data on overall recreation use levels and recreation use patterns for the Sandy River are not currently available. However, reliable information regarding recreation use has been compiled from several sources including Oxbow Regional Park, local river outfitters, fishing and boat rental businesses, Oregon Department of Fish and Wildlife, organized camps, Oregon State Parks and Recreation Department, the Portland Water Bureau, area recreationists and the Pacific Northwest Outdoor Recreation Consumption Projection Study: Oregon Project.

Fishing: The river is widely recognized for its steelhead and salmon sport fishing. Ease of access, proximity to Portland, and the generally good fishing have made this river one of the most popular sport fisheries in the northwest. The cold water and good spawning gravels of the river provide excellent habitat for game fishes such as chinook and coho salmon, steelhead and trout. The cold water also limits the types and numbers of non-game fish, such as dace, Pacific lamprey, and sculpins.

The Sandy, below Marmot Dam, consistently ranks as one of the better anadromous sport fisheries in the state and it is considered the best winter steelhead fishery for Oregon tributaries of the Columbia River (ODFW 1990). Over 7,500 salmon and steelhead tags were returned for the Sandy in 1989.

ODFW estimated that about 30,000 angling days occurred during 1970 on the lower Sandy. Fishing use has more than doubled since 1970 with over 75,000 angler days occurring on the lower river for 1988 for anadromous fish alone and may exceed 100,000 angler days each year for all species (Corrarino 1990; Massey 1990; ODFW punchcard data 1985-1989). However, informal surveys of Oxbow Park visitor use indicate that these estimates may be very low (Lind 1991). Another important recreational fishery in the lower Sandy River is dipping for smelt (eulachons), although runs do not occur every year. (Fishery habitat and population information is contained in the fish assessment section.)

Boating: The Sandy River is considered one of the most convenient day trips for boaters in the region, especially for novice boaters (Garren 1976). The lower Sandy (below Oxbow and Dabney Parks) is one of the most frequently floated sections of river in the state (Willamette Kayak and Canoe Club 1988). Fishermen float the river year-round and rafters, kayakers and innertubers primarily run the river during the spring and summer. No reliable data exist concerning boating use on the river below Oxbow Park. However, based on informal observations by Oxbow Park and Dabney State Park personnel, use has exceeded over 1,000 persons per day during high-use summer weekends. Also during the winter of 1987-88 (December through February) park personnel observed an average of 16 fishing boats launching from Oxbow Park boat ramp each weekend day reaching a peak of over 50 boats per day at the height of the winter steelhead season (Multnomah County 1990). A study conducted in 1979 (Wood), estimated an average of 100 persons per weekend day and 66 persons for weekdays floated the river during June and July from Dodge Park to Oxbow Park. Total boating use on that segment for the summer of 1979 (14 weeks) would be about 7,500 persons. A conservative estimate incorporating winter and spring kayaking/boating use would result in about 10,000 boating days each year at the 1979 use level (Scherrer 1990).

Using a conservative annual growth rate of 5 percent for non-motorized river boating in the region would put current recreation use estimates in the vicinity of 17,000 to 18,000 persons boating the upper river segment (above Oxbow Park) in 1990. The combined boating use estimates for the entire designated reach (above and below Oxbow Park) may exceed 30,000-40,000 boating days each year.

Commercial river use is limited to few (approximately 5) operations and businesses, most of which are related to fishing(Bachmann, 1991). River Trails Inc. provides rental boats and has operated float trips on the Sandy since the 1970's (Edgely 1991). According to Dick Edgely, owner of River Trails Inc., commercial demand for the Sandy River recreational boating has dropped in recent years with use shifting to other more popular rivers such as the White Salmon and the Deschutes. However, during high-use periods in May and June, River Trails Inc. rents an average of 20 boats per weekend day for use on the Sandy River.

Other activities: Land-based activities, including bank fishing and other day/overnight activities, account for the majority of the recreation use within the designated river corridor. Visitor use estimates for Oxbow Regional Park and Dabney State Park are quite accurate due to controlled and regulated road access. Multnomah County Parks Services Division estimates (1990) that over 222,000 people visited Oxbow Park in 1989 (figure 2). Dabney State Park visitation for that same year exceeded 330,000 persons (Howard 1990). This use combined with estimated recreation visitor days at Dodge Park (90,000 est.), the organized youth camps (75,000 combined est.), BLM lands (4,000 est.) and The Nature Conservancy tracts (5,000 est.) as well as angling (100,000 est.) and boating use (30,000 est.) results in **overall recreation use estimates nearing 900,000 recreation visits each year** for both land and water-based activities within the designated river corridor itself (Kriara 1990; Massey 1990; Phelps 1990; Robbins 1990; Thompson 1990). This recreation use estimate is consistent with the high use levels reported in earlier studies which calculated recreation use in the entire river corridor (from the mouth to above Dodge Park) at over one million visitor days per year (OPRD 1972 and 1983).

Minimum Instream Flow Requirements: (See Hydrology Assessment section.) Flow-dependent recreational activities include boating and floating, bank and boat fishing, swimming, wildlife viewing (salmon) and other land-based activity aesthetics (scenic value). Instream flow needs for these activities have been assessed by the Oregon Water Resources Department (OWRD). The BLM will continue to work with OWRD and Oregon State Parks and Recreation Department to assess instream flow needs for recreation. OPRD is in the process of applying for instream flow water rights as authorized under state law for recreation.

Hydrology and Water Resources

Discussion of Water Resource Values

River Profile and Character: From its source at an elevation of 6,200 feet in the rugged western Cascade Range, the Sandy River falls 4,600 feet in the first 13 miles, to its confluence with the Zigzag River (figure 1). The upper portion of the river is characterized by narrow chutes or rugged tumbles through boulders and large rocks.

Along the segment of the Sandy from the Zigzag River to Marmot Dam, a distance of approximately 13 miles, the river valley is wider with a moderate gradient and smaller gravel and rock beds. The next section of river narrows and is characterized by box canyons and bedrock channels with moderate to steep gradients, falling 520 feet over 12 miles to the mouth of the Bull Run River. The city of Sandy and the Oregon Department of Fish and Wildlife's (ODFW) Sandy hatchery both lie in this section of the river. Below the Bull Run River, the Sandy River is contained within high bluffs, forming a narrow gorge. Toward the lower end of this section, the river begins to widen with less rapids, large gravel bars and shallow riffles. The last few miles to the Columbia River are characterized by a low gradient which allows for the buildup of sand and gravel bars along banks and in backwaters (ODFW 1990; OWRD 1989).

Precipitation, discharge and flow: Annual precipitation in the Sandy River Basin ranges from around 110 inches at the source to 40 inches near the mouth, with the greatest precipitation occurring in the period between November and January, and the least rainfall occurring in July and August (Oregon State Department of Atmospheric Science 1990). Total annual discharge for the Sandy River Basin is 1,686,000 acre feet per year (USGS 1990). Mt. Hood sustains a snowpack year-round in its higher elevations, which directly affects stream discharge in the Sandy River by providing water storage over the winter and supplementing flows in the summer. Figure 2 illustrates the difference in timing between precipitation and runoff from the Sandy River Basin by comparing average monthly precipitation at Marmot Dam with average monthly flows at the Sandy River and Bull Run River confluence. Spring snowmelt has a major impact on the flow regime in the Sandy River, which can be seen in the higher spring and early summer discharge levels depicted in the graph.

Mean daily discharge for the river below the Bull Run confluence is 2380 cubic feet per second (cfs). Low flows normally occur in August and September averaging 512 and 564 cfs respectively, while highest flows normally occur in December averaging 3,920 cfs (Statistical Summaries 1931-1961, USGS 1990). Flows in excess of 84,000 cfs were recorded during periods of heavy flooding in December, 1964. The lowest recorded flows occurred in September, 1962 at about 45 cfs. During the past three years river flows below the Bull Run have been lower than the historical average from October through February and higher than the historical average from March through May with the summer months remaining about the same.

Minimum Instream Flows and Water Rights: All waters within Oregon are publicly owned and controlled by the state, in accordance with state laws. With few exceptions, a permit from Oregon Water Re-

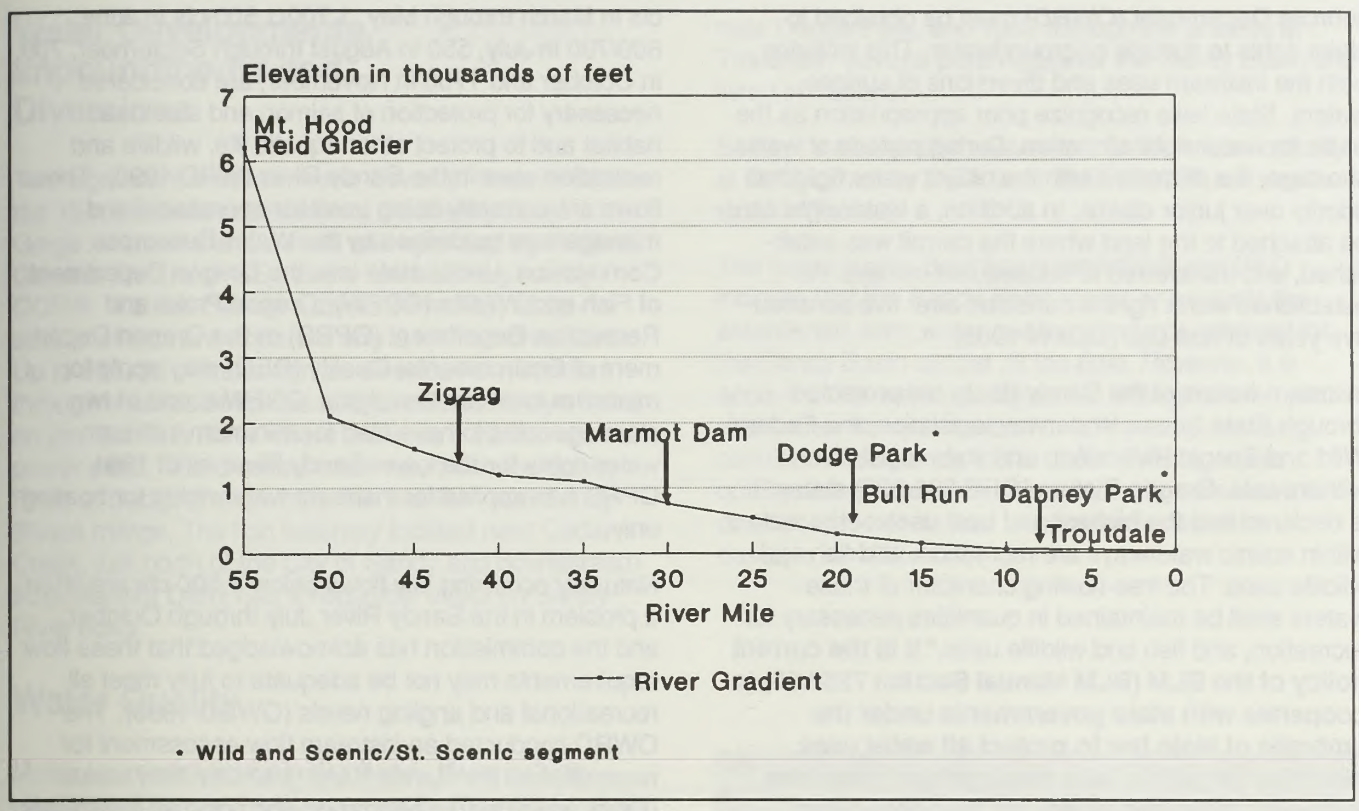


Figure 1 Sandy River Profile: Gradient from headwaters to mouth.

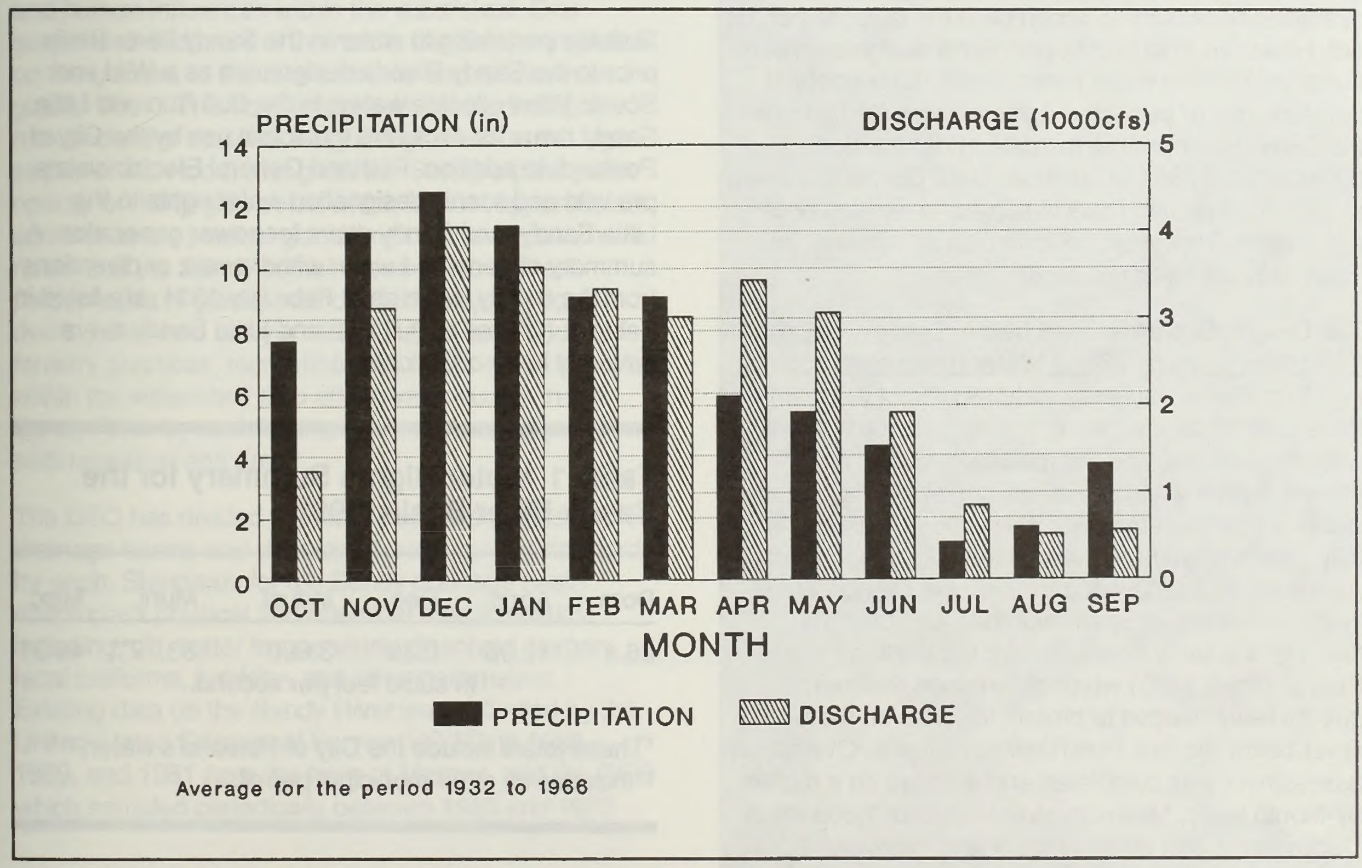


Figure 2 Average Monthly Precipitation and Discharge for the Sandy River.

sources Department (OWRD) must be obtained to claim rights to surface or groundwater. This includes both the instream uses and diversions of surface waters. State laws recognize prior appropriation as the basis for water right allocation. During periods of water shortage, the permittee with the oldest water right has priority over junior claims. In addition, a water right can be attached to the land where the permit was established, and transferred to subsequent owners. An established water right is canceled after five consecutive years of non-use (ODFW 1988).

Instream waters of the Sandy Basin are protected through State Scenic Waterway legislation, the Federal Wild and Scenic Rivers Act, and state legislative withdrawals. Oregon Statute (ORS 390.835) states "It is declared that the highest and best uses of the waters within scenic waterways are recreation, and fish and wildlife uses. The free-flowing character of these waters shall be maintained in quantities necessary for recreation, and fish and wildlife uses." **It is the current policy of the BLM (BLM Manual Section 7250.06) to cooperate with state governments under the umbrella of state law to protect all water uses identified for public land management purposes, including those necessary for flow-dependent values on designated Wild and Scenic Rivers.** The Wild and Scenic Rivers Act specifies that waters should be reserved or protected only in minimum quantities necessary to accomplish the purposes of the Act. However, Wild and Scenic River designation does not affect existing water rights, individual household domestic use or perfected rights to instream flows on the Sandy River prior to the date of designation (October 28, 1988). In addition, State Scenic Waterway protection of stream flows is subject to existing prior water rights. However, the definition of "existing" and "prior" has not been resolved.

The Oregon Supreme Court held in Diack v. City of Portland and Oregon State Water Resources Commission that scenic waterway statutes protect instream flows from water diversions that may degrade scenic waterway values. This interpretation means new permits for the use of water will not be granted within or above a scenic waterway if the proposed use detrimentally affects flows necessary to maintain these values. As a result of the "Diack decision", the Oregon State Water Resources Commission has accepted the findings of a study conducted for the Portland Water Bureau (Beak 1985) which determined minimum stream flows needed to protect fisheries on the Sandy River below the Bull Run River confluence. OWRD flow assessment was completed and adopted on a month-by-month basis. Minimum streamflows of 1,500 cfs in December, 1,900 cfs in January and February, 2,000 cfs in March through May, 1,700/1,500 cfs in June, 800/700 in July, 550 in August through September, 700 in October and 1700 in November, are considered necessary for protection of salmon and steelhead habitat and to protect other aquatic life, wildlife and recreation uses in the Sandy River (WRD 1990). These flows are currently being used for operational and management guidelines by the Water Resources Commission. Under state law, the Oregon Department of Fish and Wildlife (ODFW), Oregon Parks and Recreation Department (OPRD) or the Oregon Department of Environmental Quality (DEQ) may apply for minimum instream flow rights. ODFW is one of two state agencies to have filed for minimum instream water rights for the lower Sandy River as of 1991. OPRD has applied for instream water rights for boating only.

Naturally occurring low flows below 1,500 cfs are often a problem in the Sandy River July through October, and the commission has acknowledged that these flow requirements may not be adequate to fully meet all recreational and angling needs (OWRD 1990). The OWRD conducted an instream flow assessment for recreation on the Sandy River. Instream flow needs (Diack flows) were determined and adopted in January 1992. The recommendations have been forwarded to the three state agencies so they may apply for instream water rights.

Statutes pertaining to water in the Sandy River Basin prior to the Sandy River's designation as a Wild and Scenic River allocate waters in the Bull Run and Little Sandy rivers for exclusive municipal use by the City of Portland. In addition, Portland General Electric claims pre-wild and scenic designation water rights to the Little Sandy, and Sandy rivers for power generation. A summary of permitted water withdrawals, or diversions from the Sandy Basin as of February 1991, are listed in Table 1. (Claims to Bull Run and Little Sandy rivers have not been adjudicated.)

Table 1 Water Rights Summary for the Sandy River Basin (1991).

Dom	Agric.	Rec.	Indust.	Muni.	Misc.
26.4	12.96	0.35	3,690*	33.72**	40.31

In cubic feet per second.

*These totals include the City of Portland's water.
**Includes all other municipal permits.

Water Developments, Impoundments and Diversions

Two significant instream water developments lie within the 15-mile stretch upstream of the Sandy River Gorge: Marmot Dam, owned and operated by Portland General Electric (PGE), and a fish hatchery run by ODFW. Marmot Dam is a diversion facility, its upstream effects are apparent only a few hundred yards. Up to 600 cfs of water can be diverted from the dam through a series of flumes and tunnels to Roslyn Lake, on the Bull Run River where it serves a 22,000 kilowatt power plant. The diverted water returns to the Sandy River at Dodge Park, where the Bull Run and Sandy Rivers merge. The fish hatchery located near Cedar Creek, just north of the City of Sandy and downstream from Marmot Dam, has a negligible effect on Sandy River flows.

Water Quality

Major sources of water in the Sandy River include glacial melt, and waters from clear high Cascade lakes, which in general provide high quality, low temperature waters. However, the actual quality of Sandy River waters varies seasonally depending on climatic events and human influences within the watershed. One suspended sediment of interest in the Sandy originates on the glaciers at the river's source and is known as glacial "flour." This flour is formed by the grinding of rock under the massive weight of glaciers on the high slopes of Mt. Hood, and gives the Sandy a pale green opacity or milky-gray color, which is most apparent late summer at the peak of glacial melt. Other reports have noted that the Sandy contains one of the highest percentages of glacial melt of all the major Oregon rivers (Lowe and Lawyer 1980). Agricultural and forestry practices, recreation, and urban developments within the watershed also affect water quality in the Sandy River by contributing non-point source pollution, sedimentation and runoff.

The DEQ has divided the state's surface waters into 19 drainage basins and developed water quality standards for each. Standards for the Sandy drainage basin encompass physical and chemical characteristics including; pH, water temperature, dissolved oxygen, fecal coliforms, turbidity, and other parameters. Existing data on the Sandy River was collected by the United States Geological Survey (USGS) in 1958, 1959, and 1981 near the town of Marmot, and the DEQ which sampled periodically between 1965 and 1975 near Dodge Park, and 1968 through the present at Troutdale. Several parameters for the Sandy Basin are listed in Table 2.

Several water quality parameters collected periodically at Dodge Park by DEQ from 1965 to 1975 are summarized in Table 3.

The water quality data from both USGS and DEQ indicate that the Sandy River meets or exceeds the established state water quality standards adopted for the Sandy Basin almost all the time. However, it is apparent that water quality varies throughout the year and further study is needed to adequately assess conditions and trends in the basin. Existing water quality data has only been sporadically collected and does not provide a clear or consistent picture of baseline conditions.

Bull Run tressel at Dodge Park circa 1920's.

Table 2 Selected State Water Quality Criteria for the Sandy Basin.

pH	6.5 to 8.5
Water temperature	no increase above background if temp. 58 deg. F. or greater
Dissolved oxygen	> 90% saturation
Fecal coliform	< 200 per 100ml.
Turbidity	< 10% increase

Table 3 Water Quality Summary for the Sandy River.

Summer maximum temperature	75 degrees F.
Summer minimum temperature	52 degrees F.
Summer average temperature	63 degrees F.
Winter maximum temperature	52 degrees F.
Winter minimum temperature	35 degrees F.
Winter average temperature	44 degrees F.
Maximum pH	7.9
Minimum pH	6.5
Average pH	7.1
Dissolved oxygen maximum	105% saturation
Dissolved oxygen minimum	92% saturation
Dissolved oxygen average	99% saturation

Issues and Concerns for Hydrology and Water Quality

- **Peak flows:** Past research on the Sandy River flow regime has focused on the minimum flows required for recreation and fisheries. However, high flows are also important for the proper functioning of a stream system. Flood flows provide channel maintenance such as cleaning spawning gravels for fisheries, reworking sediments in storage, and supporting riparian vegetative communities. The frequency and timing of floods are critical to the overall health of the stream system and should be considered in the river management plan.
- **Minimum flows:** Instream flow assessments may be necessary to determine the minimum flows necessary for fish, wildlife, vegetation and recreation. Current efforts to assess instream flow needs by ODFW, OPRD and OWRD may be sufficient to insure protection of instream flows. Water rights issues in the basin are addressed through the OWRD Sandy Basin Plan. Clarification of water use rights and minimum instream flow needs should be addressed in the river management plan.
- **Cumulative Impacts:** The cumulative impacts of management and development within the Sandy River Basin will be a major concern in the future. Impacts related to activities within the Sandy Basin should be monitored, and addressed in the river management plan. Data and documentation concerning cumulative impacts is needed to determine sources of problems and critical thresholds for development and other river corridor resource activities.
- **Water quality/hydrology data:** Long-term trends in water quality, and stream morphology need to be monitored to properly assess the effects of management activities and development on the watershed.

Data Needs and Further Research

- **Peak flows:** Research in this area should determine: what levels and timing of high flow is necessary to maintain the health of the stream system (including volumes, duration and instantaneous peaks); what levels of critical energy are needed to clean and flush streambed rock and gravel as well as spawning gravels; what levels are required to enhance riparian communities; and when high flows are most important to the system. The goal is to make sound management recommendations which allow the river to function in a dynamic manner and allow channel maintenance to occur.
- **Minimum flows:** Existing reports and data should be reviewed to assure minimum flow values are adequate to protect instream and recreation values. Supplemental data should be collected if necessary. Once minimum flow requirements are established, instream water rights should be pursued through state mechanisms for protection of instream flows. A water quantity monitoring program should be part of the river management plan.
- **Cumulative impacts:** An initial assessment of cumulative impacts is essential. Monitoring and research should then be tailored to address the cumulative impacts of specific basin management actions on the river. This will require long-term support and coordination by all involved agencies and public.
- **Water quality/hydrology data:** Important water quality and stream morphology characteristics need to be identified and a monitoring scheme designed which will allow for the analysis of long-term trends. This should tie in with the cumulative impacts monitoring described above.

Geology

The Sandy River Gorge exhibits the complex series of geologic events which occurred during the last 15 million years. The geology of the lower Sandy River typifies the glacial and volcanic deposition and activity found on the west side of the Cascade Range (Peck 1960). At least two million years ago, the Sandy meandered through alluvial deposits carving the winding path that the river follows today (Allen 1983). The river maintained its course by cutting downward as the Cascade Range steadily uplifted. The resulting deep gorge exposed layers of sediment, volcanic ash and lava belonging to four major formations found within the designated segment, from Dodge Park to Dabney State Park (Figure 3).

The Sandy River Gorge itself is a significant and interesting geological formation. Recently, Cameron and Pringle (1991) identified three unique features within the Sandy River Gorge: the incised meanderings, the volcanic deposits from the Old Maid Eruptive Period (about 1760 A.D. to 1810 A.D.) and the buried forests. These features are discussed below.

The oxbows of the Sandy River Gorge formed through entrapment of a pre-existing, meandering river channel. To form meandering channels, a river must possess a very low gradient, which means that there was very little drop in elevation from the start of the meander reach to its end. The pre-existing Sandy River must have been flowing on a flat alluvial plain

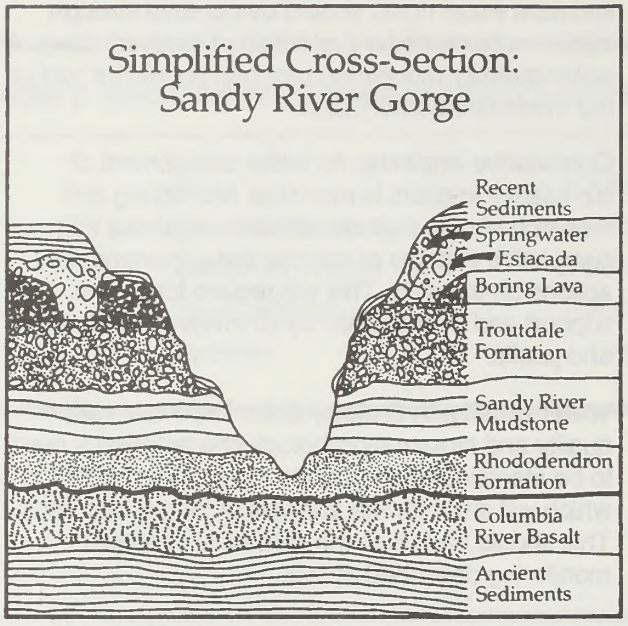


Figure 3 Simplified Geologic Cross-section of the Sandy River Gorge.

that was essentially at the sea level of the time, similar to the Willamette Valley of today. For the meanders to be preserved, the relation of the river to the sea level must have changed at a slow, constant rate; either the river was uplifted or the sea level dropped. The change must have been slow enough to allow the river to incise into the underlying rocks rather than change course and flow in a straighter orientation. The pre-existing channel of the Sandy River retained its meandering form through up to 300 feet of incision to form the present gorge. In this respect the Sandy River Gorge is unique within the State of Oregon.

The second feature is the layer of volcanic deposits of the Old Maid age that cover large areas of the floor of the gorge. The Sandy River heads near the modern vent of Mount Hood (located at Crater Rock) and has therefore captured the majority of disruptive debris since the end of the last glacial period 12,000 years ago. During this time, there have been three major eruptive periods: the Timberline Eruptive Period (1800 to 1400 years before present), the Zigzag Eruptive Period (600 to 400 years before present) and the Old Maid Eruptive Period (1760 A.D. to 1810 A.D.). Deposits from all three periods are found along the Sandy River, but the Sandy River Gorge contains very thick deposits from the most recent period, the Old Maid.

During the Old Maid eruptions, lava extruded in the vicinity of the modern vent and formed a dome similar to the one which is now growing in the crater of Mount St. Helens. As the dome grew, a portion of it broke off and fell onto the slopes of the mountain. This hot, molten material mixed with snow and ice and produced large lahars (mudflows) which entered the headwaters of the White, Salmon, Zigzag and Sandy rivers.

Only one lahar reached the Gorge still in the form of true lahar. This lahar can be seen in some exposures very near the modern water level. However, a vast volume of debris was deposited in the upper reaches of the river and almost immediately began to be eroded and transported downstream. This erosion produced a "slug" of sediment that eventually filled the Sandy River Gorge area to a depth of about 45 feet. The higher terraces in places like Oxbow Park are remnants of this valley fill.

The third feature is the buried forest along the Sandy River Gorge. During the Old Maid period, the gorge area possessed vegetation similar to what exists there today; a forest of mixed old growth cedars and Douglas firs extended to the average flood water line and a riparian growth of Phreatophytes lined the shores. When the slug of sediment filled the valley, the trees were buried and in many cases were preserved. Modern erosion has exposed some of the trees from this forest in at least two locations within the gorge that are easily found; on the upstream end of Indian John Island and along the south bank of the river from river mile 7.5 to 8.5. In these locations stumps and snags up to 5 feet in diameter and 30 feet tall can be seen eroding from the bank. Individual trees or clusters of 3 or 4 can be seen in many sites all along the gorge. A complete description of these buried trees can be found in a paper recently published by Cameron and Pringle (1991).

Soils

The soils of the Sandy River Gorge and vicinity are discussed fully in Lowe and Lawyer (1980) and complete soil profiles are on file in The Nature Conservancy's Portland office. The Sandy River flows through three general soil type areas. The upper river area, above Zigzag and Rhododendron, runs through wet and cold soils of the forested uplands of the western Cascade Mountains and the very cold soils of the high Cascade Range. The lower river flows through the wet and warm soil types associated with the terraces and flood plains of western Oregon. In the Sandy River Gorge area, there are many unique soil types including laterite soils and droughty soils developed on laharic deposits from Mount Hood. These soil types support unique vegetation assemblages.

Minerals

Current information indicates that BLM-administered lands are not prospectively valuable for leasable minerals such as oil and gas, coal, geothermal, sodium and potassium. There are no locatable or saleable mineral operations or claims in the study area. Mining in or along the river in the designated segment is prohibited under the State Scenic Waterways Act. However, small gravel operations have taken place historically on the river segment near the mouths of Buck Creek and Gordon Creek.

Wildlife

The Sandy River Gorge provides a diverse habitat for the full complement of wildlife species typical of a low-elevation site in the northern Cascade Range of Oregon (Pesek 1990; Foster 1990; Houck 1990; Lowe and Lawyer 1980; Redfern 1974). It is especially valuable because the area is relatively isolated and undisturbed, yet is located within 30 minutes of the largest metropolitan area in the state. The Sandy River Gorge offers relatively protected, natural habitats in an area and region where disturbance factors to wildlife are high. The area has high potential for educational and scientific purposes that have long been recognized by such organizations as The Nature Conservancy, Multnomah County Park Services Division, the Audubon Society and a number of local schools and colleges (Houck 1990; Ciecko 1990; Macdonald 1990; Pugh 1990).

Terrestrial habitats contained in the Sandy River corridor include mixed conifer-hardwood forests and coniferous forests in all stages of succession, including rare low-elevation old-growth stands. The Oregon Natural Heritage Plan (1988) lists portions of the Sandy River Gorge as one of the last remaining and generally undisturbed representations of a valley bottom coniferous forest in the northern Willamette Valley. Several small openings and meadows are interspersed throughout the area, including Diack meadows which is important habitat to a small herd of Elk.

Aquatic resources include river, stream, spring and wetland habitats with their associated riparian vegetation, river banks and bars. In the wetland and riparian inventory conducted by a consultant for the Multnomah County, the Sandy River Gorge received the highest wildlife assessment rating of all the areas examined in the county (Lev 1988). There is a rich diversity of amphibian species that includes several state sensitive species such as Red-legged Frog, Olympic, Oregon Slender and Clouded Salamanders (Lukas 1983). In addition, the large diversity of species may be attributable to the "cold air trough" effect where cold air drains down canyons and tributaries from higher elevations and allows the establishment of certain limited populations outside of their expected range (Lukas 1983; Cazzulino et al. 1977). Snags and large trees along the river provide perching sites for Osprey and wintering Bald Eagles.

The habitats adjacent to the river and major tributaries provide important travel corridors for wildlife movement along the river and dispersal to and from the Larch Mountain area to the east. Slopes descending into the gorge are generally very steep and contain cliff and talus rock habitats. At this time, the area's inaccessibility and topography have helped keep the river corridor fairly isolated and undisturbed. However, the demand for residential housing and increasing timber values are escalating development pressures near the river. The cliffs and terraces could also provide important habitat for raptors (Redfern 1974; Lev 1988).

The wide range of habitat types supports a correspondingly high diversity of flora (Lowe and Lawyer 1980). Lying within the Humid Transition Life Zone—a zone wet and mild in temperature—the river contains over 200 species of plants in at least 12 distinctive habitat types (Cazzulino et al. 1977). The highly heterogeneous nature of the vegetation is probably due to the range of natural disturbances and to the wide variety of slope aspects, exposures and steepness in the gorge (Lukas 1983).

The Sandy offers one of the richest wildlife resources of all rivers in the region with over 40 species of mammals, over 100 species of birds and more than 15 species of amphibians and reptiles known or believed to be present along the lower river. Mammals of the area include Roosevelt Elk, Black-tailed Deer, Black Bear, Coyote, Red Fox, Cougar, Bobcat, Otter, Raccoon, Mink, Beaver, and Porcupine. Some notable breeding birds include nesting Ospreys, Great Blue Herons, Pileated Woodpeckers, Dippers, and Spotted Sandpipers. Notable wintering and migratory birds include Bald Eagles, Greater Yellowlegs and Harlequin Ducks (Lowe and Lawyer 1980; Ciecko 1990). A complete Wildlife Checklist is included in Appendix C.

Species of Special Concern

One Federally Listed Endangered Species, the American Peregrine Falcon, **Falco peregrinus anatum**, and one Federally Listed Threatened Species, the Bald Eagle, **Halleetus leucocephalus** have been recorded in the Sandy River Gorge.

The Peregrine Falcon (anatum race) was formerly bred throughout the middle of North America. It was extirpated from the eastern part of its range, and has become rare and local in the west. Separate races from the Pacific Northwest Coast (a non-migratory permanent population) and from Arctic tundra areas have sustained a lesser decline in numbers, and the Arctic race appears throughout Oregon during migration. A hack sight (release site for captive-bred birds) has been established at Horsetail Falls in the Columbia River Gorge by the Oregon Department of Fish and Wildlife approximately twelve miles from the Sandy River Gorge. Much of the Gorge offers excellent hunting and roosting habitat, and a bird was seen in June of 1991. Potential nesting habitat may also exist on the lower Sandy River.

Bald Eagles are known to use the Gorge in winter, probably due to a reliable food supply from seasonal fish runs. A bird was noted on the Heidtmann and Taylor survey in 1986 at The Nature Conservancy's Diack/Kingfisher Tracts and a subadult was seen near The Nature Conservancy's Bluehole Tract by BLM surveyors in 1991. Many suitable perching snags exist between Dodge Park and Oxbow Park, and few observers visit this stretch of the river during the time when Bald Eagles are most likely to be present. Few entry points are available, and it is seldom rafted in the winter months.

The Northern Spotted Owl, **Strix occidentalis caurina**, is a Federally Listed Threatened Species. Surveys were conducted by BLM personnel on the nights of July 15 and 16, 1991 in Oxbow Park and in the older forest areas between Dodge Park and The Nature Conservancy's Blue Hole Tract. No owls responded during these surveys. Other old growth/late seral stands on BLM's ACEC on the north side of the river will be surveyed in 1992. These old growth and late seral conifer stands are fairly small and fragmented, and are unlikely to be extensive enough to support a breeding pair of Spotted Owls.

Two Category 2 candidate species (FC2) for protection under the Endangered Species Act are known to occur in the Sandy River Gorge. The Harlequin Duck, **Histrionicus histrionicus** is known to use the Sandy River Gorge as a migration flyway between its nesting habitat on (generally) higher elevation rivers and streams and its coastal wintering habitat. Its Oregon breeding range is poorly known, however, one nest, apparently only the second ever found in Oregon, was located on the upper Sandy near Lolo Pass by Forest Service personnel in 1991. The discovery of successful nesting birds on the North Santiam River at a relatively low elevation (less than 800 feet) in 1991 suggests it is possible that the Gorge itself might also be used as a breeding sight. The Red-legged Frog, Rana aurora has been noted in a variety of habitats both near and away from water. The species is thought to be declining in numbers throughout its natural range. The reason for this decline is unknown at present.

Two other bird species found on Sandy River Gorge surveys have special Oregon Department of Fish and Wildlife (ODFW) status. The Pygmy owl, **Glaucidium gnoma** (Status Undetermined), is a cavity nesting species generally associated with old growth and late seral conifer and mixed-conifer stands. Snags and decadent live trees that have been excavated by woodpeckers provide this diminutive owl with nesting opportunities. It preys largely upon nesting and resident songbirds, small mammals, and insects. One bird was heard on BLM land between Dodge Park and the TNC's Bluehole Tract during the 1991 Spotted Owl Surveys. It is likely that others will be found in Oxbow Park and on the BLM old growth ACEC on the north side of the river.

The Pileated Woodpecker, **Dryocopus pileatus** (Status Critical), is the largest woodpecker in North America (the Ivory-billed Woodpecker is now known to exist only in Cuba). Individuals have been seen or heard on several surveys in TNC's Kingfisher and Diack Tracts and at Oxbow Regional Park. It is considered to be of critical importance to many cavity nesting species of birds and mammals due to its role as a primary excavator.

Three amphibian species with special ODFW status have been confirmed on Sandy River Gorge surveys. In a study completed in 1983, David Lukas of Reed College found that the combination of slow-moving warmer water in the floodplain, fast-moving colder waters in streams and springs, and abundant decaying woody material provided for high diversity of amphibian species within the Gorge.

The Olympic Salamander, **Rhyacotriton olympicus** (Sensitive Vulnerable), was noted in creeks along the slopes of the Gorge by Lukas and by BLM observers in 1991 surveys. This primarily aquatic salamander is sensitive to cumulative changes in water temperature and stream siltation and its presence is thought to be indicative of good general stream health. Many of the springs wholly contained within the Gorge corridor provide stable habitat for this species.

Clouded Salamanders, **Aneides ferreus** (Sensitive Critical), and Oregon Slender Salamanders, **Batrachoseps wrighti** (Sensitive Critical), were found exclusively in logs and stumps in late seral and old growth areas (Lukas 1983). The Clouded Salamander inhabits woody material in the early stages of decay, usually when loose bark is still attached. It may be

common in areas of natural or human-caused forest disturbance when logs, stumps and debris are left to decompose naturally.

The Oregon Slender Salamander is mostly endemic to six Oregon counties west of the Cascades and east of the Willamette River. It may be locally abundant, especially in late seral/old growth stands where large amounts of well-decayed woody material are present. Lukas found nineteen individuals, all inside woody material, during his 1983 survey. Due to its extremely limited distribution, it is a likely amphibian candidate species for some level of future protection under state or federal endangered species laws. The species was elevated to List 1 of the ONHP Database in its May 1991 publication.

Three other State Sensitive amphibians have been searched for by both Lukas and by the BLM. The Tailed Frog, **Ascaphus truei** (Sensitive Vulnerable) inhabits cold, fast-moving forest streams and riparian areas throughout humid parts of the Pacific Northwest. It was one of four amphibian species (Tailed Frog, Cascades Frog, Oregon Slender Salamander, and Olympic Salamander) which were sought by Lukas as evidence of a "cold air trough" effect in the Sandy River Gorge. The Tailed Frog is known to occur at or near sea level, and may still be found on future surveys. The Cascades Frog is generally found above 800 meters, and its occurrence is unlikely.

Cope's Giant Salamander, **Dicamptodon copei** (Sensitive Critical), was recently determined by herpetologists to be a separate species from the common Pacific Giant Salamander, and the Gorge is at the approximate southern edge of its known (geographic) range. Lukas mentions difficulty in ascertaining the identity of Giant Salamander specimens found on his surveys due to lack of qualified consultation. Any stream in which Pacific Giant Salamanders or Olympic Salamanders are found should be considered potential Cope's Giant Salamander habitat. No follow-up surveys have been done to confirm this species' presence.

The Osprey, **Pandion halieatus**, is protected under the federal Migratory Birds Treaty Act, and has been monitored where it occurs near BLM land. Fourteen Osprey nests were located and observed between Dodge Park and Dabney State Park during three 1991 BLM surveys. Surveys by river raft were conducted on May 21 and on July 2, and a bank survey was done between July 15 and 17. Nine were found to be active, four were inactive, and the status of one could not be determined. Four juveniles were observed in the active nests by July 17. This concentration of Osprey breeding activity is noteworthy for Northwest Oregon. Other areas of prime breeding habitat include Green Peter Reservoir, Detroit Reservoir, and Fern Ridge Reservoir. Osprey distribution on most other free-flowing river stretches in the region tends to be less concentrated.

Vegetation

Influenced by a wet maritime climate, the Sandy River Sub-basin incorporates parts of three physiographic regions: the High Cascades, Western Cascades and the Willamette Valley regions. Within the short distance of the 12.5-mile designated segment, diverse environmental factors have created a wide range of distinct associations of plants and resulted in a large number of plant species. (See Appendix C). The river supports over 200 species of plants in 12 distinctive habitat types. Many plants and plant communities are found along the river that otherwise would not be readily encountered along a river at this elevation or location. This is due, in part, to a number of varied physiographic conditions including the river's location and the effect of a distinctive cold air drainage pattern (previously described in the Wildlife section).

Plant Communities

The Sandy River lies in the Humid Transition Life Zone. Average rainfalls of 40 to 80 inches and mild temperatures characterize the life zone which runs from the Pacific Coast to mid-elevations in the Oregon Cascades (3,000-4,000 feet). As a result of these physiographic conditions, mixed composition forests of Douglas-fir, western hemlock, and western red cedar were the original inhabitants of substantial portions of the Sandy River Gorge. Smaller trees of **Alnus rubra** (red alder), **Acer macrophyllum** (big-leaf maple), **Cornus nuttallii** (Pacific dogwood), and an array of shrubs (including salal, Oregon grape, and blackberry) became mixed understory plants, particularly when an opening in the canopy of the mature trees permitted penetration of light to the forest floor.

The river's geographic location, near the mouth of the Columbia River Gorge, has also contributed to the vegetative diversity. Carving a near-sea level route through the Cascade Range, the Columbia River Gorge is a major factor in the region's rich natural and cultural history. This unique physiographic setting supports many endemic and relict populations of plants as well as important habitat for numerous animal species (Franklin and Dyrness 1973).

Through time, the natural forces of rain, wind, and erosion (in part generated by the active river) created an environment of surprising complexity. The adaptive

responses of plants to these environmental factors have resulted in a diverse and complex flora in many parts of the gorge. The bio-geographical features of the Sandy River Gorge have enhanced the distribution of a complex flora due to the unusual location of vegetation effected by slope exposure (Galen, 1976), even on lands with major differences in successional stages (logged and unlogged habitats). Moist and swampy areas occur throughout the gorge as a result of numerous springs and provide excellent conditions for Oregon ash, big-leaf maple, and many herbaceous plants adapted to more mesic environments. Remnants of hemlock-fir forests remain on terraces and steep slopes too difficult to harvest by early logging methods (i.e. Sandy River Gorge ONA).

A distinctive cold air drainage pattern along the floor of the Sandy River Gorge provides environmental modifications adequate to sustain lodgepole pine and true firs otherwise more characteristic of the higher elevations. Natural disturbances (fire, flood, and windstorm) have been frequent in the past. Such disturbances disassociate the stable plant communities causing many types and states of plant succession. The many successional stages contribute greatly to the complexity of the flora of the gorge.

Rare Plants and Old-Growth Habitat

The area between Oxbow Regional Park and Dabney State Park (and on out to the mouth of the Sandy River) is a historical range for **Delphinium nuttallii**, a Review Listed Species on the Oregon Natural Heritage Program List. A Review Listed Species is one requiring information for status determination.

Cimicifuga elata, a plant currently on the Oregon Natural Heritage Program List I, was discovered in a 1977 botanical survey. Taxa on ONHP List I categories are taxa which are endangered or threatened throughout their range. Most of the **C. elata** populations were found in the general areas of River Mile 14 on the Sandy River, with one population up-river near River Mile 15.

Some plant species present in the Salem District are considered "watch-listed" species. This designation refers to species the Salem District has identified for further research in order to determine whether or not a plant is rare. One plant that currently qualifies as a Salem District "watch-listed" species is **Salix fluviatilis**. However, its status as a "watch-listed" species may change under the Salem District's new long-range management plan since research has shown the plant to be more common than was thought. Nevertheless, further study of **Salix fluviatilis** can help in the understanding of riverine ecology on the Sandy river.

A remarkable example of a moist, low-elevation, Willamette Valley/Western Cascade ecotone old-growth forest community is found on the BLM-administered Outstanding Natural Area (T.1S., R.4E., Section 23) and other adjacent lands in the Sandy River Gorge. The stand is representative of the forested river terrace areas that formerly occupied zones throughout the northern Willamette Valley/Western Cascades ecotone along the Clackamas, Tualatin, Molalla, Yamhill, and Willamette Rivers. The site exemplifies a rare plant community type identified in the Oregon Natural Heritage Plan (1990) called "Moist Temperate River Terrace Forest." It contains a mixture of Douglas-fir, western hemlock, western red cedar, and associated hardwoods on western Cascadian slopes (Willamette Valley/western slopes Oregon Cascades margin). Several biological studies (Reed College and others) have been concentrated in this ONA because the habitat is unique, and cannot be found elsewhere.

A description of the distribution and succession of epiphytic lichens in typical habitats for the Middle Sandy River Gorge was completed in 1975 (Bayne and Scriven). Epiphytic lichen studies were also accomplished in the BLM-administered ONA on the Sandy River (Sillett 1988, 1989).

Nature Interpretation and Environmental Education

State and County Parks along the Sandy River provide opportunities for nature study and for public educational programs on the ecological values of the Sandy River riparian Zone and adjacent areas. Some old-growth forest communities found in Oxbow Regional Park represent historic and relict bio-geographic components along the Sandy River and are used extensively for nature interpretation and environmental education programs. The Nature Conservancy and BLM-administered lands are also used for educational and scientific purposes including research projects conducted by students of local schools and colleges.

Visual Resources

The Sandy River exhibits a variety of scenic qualities which prompted its designation as a State Scenic Waterway and its subsequent designation as a Federal

Wild and Scenic River. The 12.5-mile river segment retains an undeveloped character although it is relatively close to the Portland metropolitan area.

A scenic inventory was completed during the fall of 1990 in accordance with BLM Visual Resource Management guidelines. Characteristics assessed included landform, vegetation, water, color, scarcity, and cultural modification (BLM Manual Section 8411). The overall scenic rating for the river (score of 19) qualified the area to be classified as "A", the highest scenic quality rating possible under the BLM "Upland Visual Resource Inventory and Evaluation" methodology. The high rating was due to the diverse vegetation, striking landforms and water features. Cultural modifications are extremely limited and did not seriously detract from the scenic values along the river.

The river is used for a wide variety of recreational pursuits. The amount of visitation, as documented in the recreation section, is expected to increase. Therefore, views within the river corridor will be enjoyed by increasing numbers of visitors.

For visitors along the river, the scene is one of a moderately large and steep gorge with a swift-flowing river and topography displaying a variety of vegetative types. Views from various points along the rim provide vistas of the meandering river, deep set in its green gorge, along with backdrops of forests, farmland and the ever-present Mt. Hood. Extensive descriptions and detailed accounts of the scenery and river experience can be found in the State Scenic Waterway Sandy River Reports from 1972 and 1983. The importance of the Sandy River's scenic values was also substantiated by other river assessments including those prepared for the Columbia River Gorge National Scenic Area (Land and Water Associates 1989), which found the lower Sandy to be one of the most scenic river segments of the Columbia River Gorge tributaries.

The viewshed along the river was determined and mapped during the State Scenic Waterway Study (1972). The seen area, or area of greatest visual effect; includes approximately 3,009 acres (82%) out of a total 3,700 acres within the 1/2-mile study corridor. This area was determined to be the most sensitive in regard to scenic values. The area receives a greater degree of consideration by State Parks for land development and resource management practices. Approximately 18 percent of the 1/2 mile river corridor lies outside the canyon rim and is hence not within the area of greatest visual effect.

The geologic features, which add to the pleasant scenery, include steep canyon walls, a box canyon near Camp Namanu, cliffs and exposed rock along the rivers, waterfalls, and boulders of various sizes along the stream-course. The presence of the gorge and the near-natural scenery along the river is unusual in the area and provides a transition from the relatively flat-to-rolling topography of the Willamette Valley to the foothills surrounding the Mt. Hood plateau.

The vegetation along the river is extremely varied and displays a multitude of various shades of greens, browns, and grays, punctuated with brilliant yellows and reds during the autumn. The low-growing grasses and riparian vegetation are crowned by a variety of large hardwood trees, which are intermingled with sweeping conifers and occasional stands of large remnant old-growth trees. Travelers along the river, as well as those viewing from the rim, are provided a rich and varied scene.

The Sandy River itself is recognized for the milky-gray color of its glacial waters. The glacial flour characteristics could be considered detrimental to scenic quality, but the appearance of the murky grey waters is overridden by the character of the stream itself — a mixture of rapids, still pools, and tranquil stretches reminiscent of alpine streams. Periodic views of cascading waterfalls from tributaries entering the river contribute to it's scenic value.

Cultural modifications within view of the river include approximately 12 homes, small recreation developments at Dodge and Dabney Parks, a boat ramp at Oxbow Park, a Bonneville Power Administration powerline, an aqueduct from Bull Run Reservoir, and aging sandbags and rip rap placed along the riverbank to control erosion. Although visible from the river, these modifications do not significantly detract from the overall scenic quality. Many of the man-made intrusions are either screened from view, not evident to the casual observer, or are visible for only a short period of time as river travelers float along. However, incremental development has slightly increased the presence and visibility of cultural modifications over the past twenty years. An analysis of these effects will be contained in the environmental assessment document of the management plan. The 1983 Sandy River Gorge Report by the Oregon State Parks and Recreation Department noted that while new development along the river was not documented, visible development along the canyon rim and flanks had increased between 1972 and 1983. The Sandy River Gorge, as described above, is considered relatively unusual in the region. However, similar scenes occur in the nearby Columbia River Gorge, and the Clackamas River and Eagle Creek drainages. Therefore, the scenes offered by the Sandy cannot be considered scarce. However, the gorge's proximity to the Portland metropolitan area increases its chances of being viewed thus increasing its value as a scenic resource.

Cultural Resources

The Columbia River was occupied by Indian people from at least 11,000 years ago (The Dalles), Aikens 1986). Excavated sites in the lower Columbia (Sauvie-Island) have been dated to 500 B.C. and in the Willamette Valley (sites near Sweet Home and Oakridge) to 6000 B.C. (Minor, et al. 1980). Lewis and Clark noted in 1805 that they were seldom out of sight of Chinook Villages (along the Columbia). Lewis learned from a number of local Indians in 1806 that the Sandy (called by Lewis, the Quicksand River and by Chinook Indians, the Ye-ki-oo) had its source on the southwest side of Mt. Hood and that it was only navigable for a short distance due to falls and rapids. While this indicates the Indians' familiarity with the Sandy from its Columbia confluence to its headwaters, Lewis was also told that no nation inhabits it.

While Indian occupation of the Sandy River area may not have occurred in the 1800's, two grinding stones have reportedly been found on an older river terrace forty feet above the present river bed, upstream from Oxbow Regional Park (Lowe and Lawyer 1980). Projectile points and a mortar and pestle have reportedly been found in the Oxbow Regional Park area. It seems probable that prehistoric archeological sites are present in the Sandy Gorge and may be found in the future. Considering the long history of human occupation to the east and west of the Sandy, the high density of Indians living nearby on the Columbia in the early historic era, the Indian's recorded familiarity with the Sandy river's course, and the apparent presence of artifacts typically affiliated with village or longer-term seasonal camp activities, it would seem likely that sites may exist.

The first recorded Euro-American sighting of the Sandy River occurred in 1792 when Lt. William R. Broughton of the British Navy sailed up the Columbia. He accurately mapped and described the mouth of what he named the Barings River. In their 1805-1806 explorations, Lewis and Clark gathered more information on this river, calling it the Quicksand River after finding the bottom of the Sandy "a quicksand and impassable". They described the river, collected information on its course from local Indians, explored the river for six miles up from its mouth, and noted the river had a February run of smelt important to the Indians. The "Quicksand" River was shortened to Sandy River between 1845 and 1850, during which time it was variously referred to as Quicksand, BigSandy, and Sandy River.

A number of epidemics, starting before 1800, reduced the local Chinook Indian population and between 1830 and 1834, ague fever killed 80 percent of the remaining Indians. Still other epidemics followed. The relatively few remaining Chinooks were put on the Grand Ronde Reservation in 1857. Some Chinookans were later moved to Siletz Reservation and others were eventually settled on the Warm Springs and Yakima Reservations. Indians from the Warm Springs Reservation continued to pick huckleberries in the Sandy River country into the 1900's, coming annually to the Willamette Valley to work in the commercial berry fields and to gather wild huckleberries (Ciecko 1981).

There is no evidence that the Sandy River Gorge was visited by Euro-Americans during the exploration and fur trade period in western Oregon (1811 to 1841). However, numerous fur trapping expeditions operated out of Fort Astoria and the Willamette Valley, and the Sandy River Gorge may have been visited. From 1814 until mid-1829, the fur trappers operating in the area either did not record their travels or if they did, their records have not survived.

Overland American emigrants began arriving in the Willamette Valley in1841. The final stage of this journey was by raft through the Columbia River Gorge. In·1845, Samuel Barlow and Joel Palmer determined to find an alternate route, blazed a trail over Mt. Hood and down the Zigzag and Sandy Rivers to just north of the City of Sandy. Theresultant Barlow Toll Road was in operation from 1846 until 1919, and although the road does not enter the Sandy River Gorge, it is an important part of the history of this immediate area (Oregon State Parks 1983).

Lands in the Willamette Valley, along the Willamette River tributaries, and other open lands along the Columbia were the first to be claimed and settled by emigrants in the 1840's and 50's. As the valley lands were taken up, new settlers had to take claims in adjacent areas, and the first homesteads in the Sandy River Gorge were claimed in the late 1870's. Because of isolation in the Gorge, some tracts of land were never taken up in homestead claims and most farming was limited to lands above the gorge rim, with settlers occasionally cutting wood below the rim (Stumpf 1979).

A General Land Office (GLO) survey of exterior boundaries and some subdivision boundaries for T. 1 S.; R. 4 E., and for west exterior boundaries of T. 1 S., R. 5 E., completed in 1855 by L.F. Cartee (GLO 1855). Additional survey work was completed in 1875 by John A. Hurlburt. Hurlburt noted that T. 1 S., R 4 E. Sec. 3 and 11 was "high mountainous land, unfit for cultivation." Sections 8, 16, and 22 were described as "Land rolling, Soil 2nd rate." The Section10/11 line was "Land

... worthless for cultivation being either steep hillside or sandy bottom." Sec. 14, 15, 22, 23 corner, however was noted as "soil good. Fir timber with some fern openings. Vine maple and hazel underbrush." (GLO 1875). Two homesteads are shown on the map Hurlburt produced for T. 1 S., R. 4 E., both being to the southwest of the Sandy River Gorge. One of these was claimed by Terwilliger and one by Williams. A cadastral resurvey of these township/ranges occurred in 1918 by FredW.Radolf and in 1980 by Frank Tuers. Two witness trees, inscribed to mark boundaries probably during the Hurlburt survey (1875), are present on The Nature Conservancy's Diack tract (Ciecko 1981).

With the exception of a few parcels, lands in the Sandy River Gorge were eventually taken up as homesteads. For example, AndersonF.Johnson homesteaded 40 acres near the Oxbow Regional Park boat ramp (Ciecko 1981). The family cleared land, built a cabin, gardened and raised a few cattle. Lands not homesteaded passed from the government to the Oregon and California Railroad Company (O&C Company) during 1866 to 1869. Initially, the O&CCompany was required by the Federal government to sell some of these tracts to settlers. For example, in 1905, a younger brother of Anderson Johnson bought a 40-acre parcel for a farm from the O&C Company for $116.75. In 1916, unsold O&C lands were revested to the Federal Government due to violations in terms of the original grant. Several parcels of Gorge lands returned for management as timber lands first by the General Land Office and ultimately, its successor, the Bureau of Land Management (BLM, Philipek 1988). Over the years, the homesteaded or purchased lands have changed hands, been logged, grazed, or farmed. The majority of such activities took place on lands above the Gorge rim.

Some types of activities did regularly occur below the rim, however. Commercial and recreational smelt fishing has taken place on the Sandy River since 1907 (Oregon State Parks 1983). Commercial smelt fishing is not done much above the town of Troutdale, but recreational smelt fishing does occur in the designated river segment. Recreational and subsistence hunting, trapping and berry-picking also has taken place near the river over a long period of time.

The first log drive in the Sandy River Gorge commenced from Brightwood (Stumpf 1979). The last drives took place in 1925 or 1926. A common problem through this entire period was piling of logs on sand bars with the resultant build-up of a log jam. These jams were occasionally broken up by use of explosives. After 1900, most of the timber material in the drives was processed in the form of railroad ties prior to the drive, and floated as finished products. Sawmills, flumes, logging railroads, and other facilities were constructed through this time in the Sandy River country.

Homesteaders removed timber periodically from the Gorge for firewood or other purposes, but commercial logging in the Gorge didn't start until 1925. In that year, a 10-year timber patent for 200 acres in the north portion of section 23 was issued to Robert and E. Jarl (USDI n.d.). Most commercial logging took place in the 1940's and 1950's. With the exception of Indian John Island and nearby areas, most of the lands in the Gorge have been logged at some time in the past, though sometimes this logging consisted of high-grading or selective cutting rather than clear-cutting.

The Sandy River Rail Line was built in 1909 by the Mt. Hood Electric Company. In 1913, the rail line was purchased by the Portland Railway Light and Power Company (PRL&P), the predecessor of Portland General Electric (Greisser 1979). The rail line was originally used as a construction line for the Bull Run power plant (Marmot Dam power plant) and was operated by steam locomotives. PRL&P electrified the line in 1913. The train ran from Portland to Oregon City to Gresham and finally to Linneman, where a connecting train ran to Bull Run. An additional line ran from east Portland to Troutdale via Russellville, Varnel, Elwood and Ruby Junction. In 1913, trains left Portland approximately every 30 minutes pulling as much as a 12-car string. In later years, frequency of operation increased. The train was used for both recreation and freight. As a result of the lines' popularity and speculation that the line would continue to Mt. Hood, real estate values increased rapidly in nearby areas.

Recreationists used the line for transportation to Dodge Park (then Canemah Park) to fish, picnic, and dance at the Dodge Park pavilion. Millions of board feet of lumber often processed as railroad ties were hauled annually on the line. With the waning of railroad hauling of timber, sheep ranchers continued to use the line to transport sheep to market. After 1929, when sheep ranchers began using alternate routes, major freight use of the railroad was confined to the shipment of mail. In 1931, the line ended its service. Remnants of the Sandy River Rail Line are still visible at Dodge Park in the form of the original railway grade and concrete posts from the 70-foot high trestle that once spanned the river.

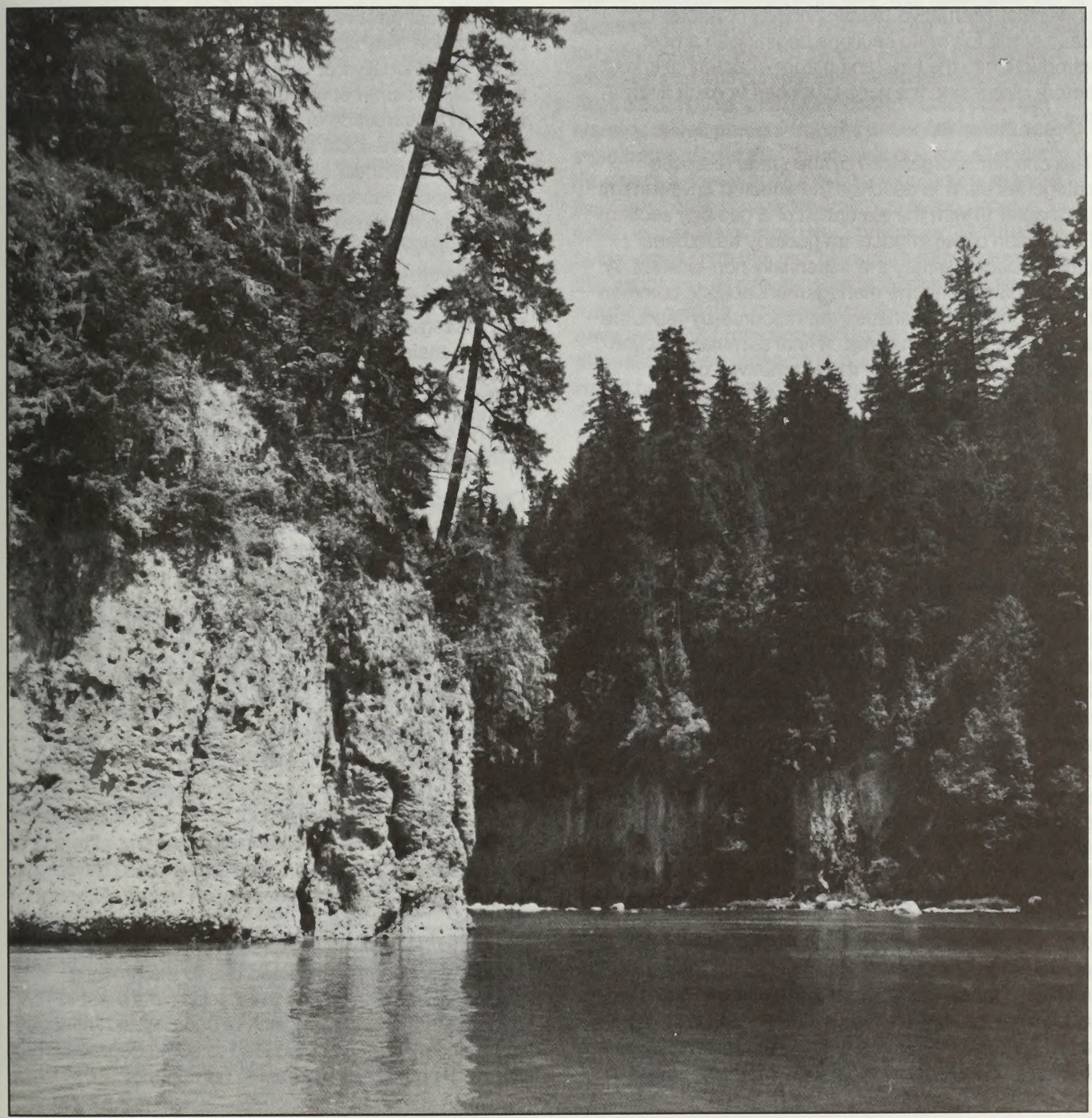
Gravel quarrying occurred in the Gordon Creek area in the 1920's (Ciecko 1981). The county operated this quarry and utilized a cable and trolley system to lower rock from an upper slope position to a crusher below. Scars of this extraction are still visible. Gravel extraction occurred in the Buck Creek area in the late 1940's

and early 1950's. In the 1940's, extraction and crushing was conducted by rechanneling the river at the mouth of Buck Creek and removing river rock. A small bridge spanned the river to haul rock from the south side of the river to the crusher on the north bank. In the 1950's, a large dragline was placed on a terrace adjacent to Buck Creek. Tailholds were placed across the river on the south side, allowing the dragline to remove gravel from the river without diverting the water. There is no visible evidence of these Buck Creek area quarrying operations.

During the prohibition era of the 1920's, Gordon Creek became the site of a large number of illegal stills (Ciecko 1981). The area gained a reputation for this activity, an activity for which it was well suited due to its isolation.

In general, located evidence of historic activities in the Sandy River Gorge and designated river segment is limited to two survey witness trees, remnants of the SandyRiver Rail Line, and the 1920's quarrying at Gordon Creek. However, few field inventories have been conducted (USDI n.d., Gilsen 1990). Additional sites or features may be found in the future. Such sites might include cabin and structure remnants, trail paths and tree blazes, exotic plants (suchas some of the trees on the Diack tract), campsites, historic trash dumps, logging equipment, and other such features.

Chapter IV
Environmental Consequences



Effects of Implementation of the Alternatives

Introduction

Chapter III, "Affected Environment," describes what will happen to the various resources if the actions of each of the four alternatives are implemented. Alternative A, the current situation, describes the impacts anticipated to the resource if no additional management actions are taken. Alternatives B, C and D describe impacts to the resource given the actions that would be taken under that alternative (as described in Chapter II). Each of the following sections begins with a brief introduction to the type and nature of potential impacts before discussing the consequences of each alternative.

This chapter is organized by the same resource categories used to describe the affected environment in Chapter III with the exception of a geology section. Discussion of the impacts on geology have been omitted because they are essentially non-existent. A section discussing the management actions common to all alternatives precedes the resource-by-resource analysis of the alternatives. A final summary section discusses the impacts of the alternatives on key planning issues, cumulative impacts and any adverse environmental effects that cannot be avoided.

Management Actions Common to All Alternatives

Under all alternatives it is assumed that recreational use levels as well as residential development and land use practices within the river corridor will continue to increase or intensify along with the growing metropolitan populations. Therefore, impacts to fish, wildlife and vegetation will increase accordingly or change at the same rate of degradation if no other management actions influence recreation or development. However, under all alternatives, State Scenic Waterways Program landowner guidelines discussed in the land use and socio-economic section of this chapter will continue to be enforced and will reduce and minimize the extent of development impacts as it has in the past.

It is also assumed under all alternatives that all lands would continue to be under the authority and be managed by the particular public authority or private landowner as they are today. Differences in how activities or management of fish, wildlife and vegetation habitat or populations, recreation sites and private lands would occur, especially as it relates to coordination of efforts or monitoring, is addressed under each alternative analysis.

Impacts to Land Use and Socio-Economics

Introduction

For the lower Sandy River, primary land use activities are residential development, agriculture and timber harvest. The river management plan could have some limited effect on levels of timber harvest and residential construction. Any impacts to timber harvest could have some effect locally but very little effect regionally due to the limited volume of wood fiber and acreage available. Housing construction or residential development can play a role in the local economy. Residential development also can affect a wide range of physical, biological and social resources. Some people who wish to protect the river are concerned that increased attention to the river or increases in the regional population may heighten other trends leading to increased demand for housing within the river corridor. Others are concerned that management may overly restrict their ability to build on their property or expand their dwelling. There is no known additional potential impact on agricultural practices generated by actions under any of the alternatives that is not already addressed by existing water quality and county agricultural restrictions.

Other socio-economic impacts precipitated by the alternatives primarily involves recreation use and includes effects on population trends, employment, tourism, and demands for emergency services.

None of the alternatives would significantly affect land values, property tax receipts to the county, or property assessments and taxes. Regional and state economic variables far outweigh any possible impact on these values by the alternatives.

Alternative A

Under this alternative, current management efforts would be maintained. This alternative would have no major impacts on current population trends. Although there would be no significant expansion of recreational opportunities, a slight increase in service-related employment can be expected due to the growing popularity of the area and the Pacific Northwest in general. In the long term, lack of coordinated management and monitoring could lead to some degradation of the river's quality as increasing numbers of

recreationists utilize the river's resources and pressures for land use development increase. An eventual degradation in the river environment will negatively affect the quality of life for residents near or along the river. Timber and agriculture activities would not be affected under this alternative.

Residential development in the river corridor has been constrained by a limited supply of suitable building sites due to steep topography, flood potential, and poor access to both sides of the river. In addition, the river corridor lies outside of the urban growth boundary and is zoned primarily for agricultural and timber use. Also State Scenic Waterway restrictions have limited development of any kind within view of the river itself. Under current zoning regulations, there are about 215 buildable lots within the river corridor (1/4 mile of each side). Currently about 165 buildings exist on over half of the lots. A maximum of about 75 additional houses could be built in the lower river corridor. Potential building sites are dispersed throughout the corridor on private lands mostly along or above of the rim of the Sandy River Gorge. While many of these sites would require prohibitively expensive improvements or the placement of a residence on 20-acre lots or larger, increasing housing demand, urban sprawl and rising regional land values will make them increasingly attractive in the future.

The population of the Portland metro area is expected to increase by 30 to 40 percent in the next 20 years. Population increase in and of itself will increase recreational use, land values, demand for county services (road, emergency, etc.), and tourism.

Alternative B

Recreation opportunities would be encouraged and enhanced under this alternative, which would lead to a potential increase in service-related employment. Commercial outfitters, service providers and campgrounds would be especially affected, with the end result being a significant increase in tourist-related revenues. Expanded and improved recreational opportunities may somewhat boost the current population trends for the area. Increased recreational use anticipated under this alternative could slightly increase demand for county road and emergency services.

There could be some limited impact on local timber supply as owners of timber lands take advantage of potential willing seller scenic easements mentioned under this alternative. Scenic easements on about 300. acres of land could eventually be acquired under this alterative. It is impossible to estimate values as lands have not yet been identified.

Residential development could similarly be marginally affected. Possibly 5 to 10 potential building sites could be affected by scenic easements outside of the State Scenic Waterway boundary and inside the federal Wild and Scenic boundary.

Alternative C

This alternative would strive to maintain and restore ecological values of the river corridor. This alternative has the potential to limit the level and type of timber harvests and also to restrict land uses such as residential development. By protecting natural resources and limiting recreational development, this alternative would also limit any increases in revenues from tourist-related industry. Any increase in service-related employment would be minimal compared to Alternative B. Similar to Alternative B, this alternative could restrict potential housing development through conservation and scenic easements. About 20-25 potential building sites could be affected above and beyond the no action alternative. This could somewhat limit population growth within in the designated river corridor by 20 households. Apart from the loss of tourism-related revenues, this option would provide private landowners and residents with an increased quality of life through environmental protection and increased controls on recreational use. Impacts to the level of timber harvest would be somewhat greater than Alternative B. About 350 to 400 acres could be affected by willing seller ecological or conservation easements rather than visual or scenic easements. Some actions concerning the use and application of pesticides and herbicides could affect agricultural practices to a limited degree.

Alternative D (Preferred Alternative)

Limited recreational development will slightly increase service- and tourism-related employment. Increased management and law enforcement could improve the quality of life along the river by decreasing the number of illegal acts and incidents such as trespassing, littering and dumping. As in the other alternatives, current population trends will continue and not be significantly affected. However, controlled recreational use and access could also reduce demands on county emergency services through interagency information, patrol and signing. Similar to Alternative C, about 20-25 fewer lots would be available to residential construction. Similar to Alternative B about 300 acres of conservation and scenic easements could affect levels of timber harvest. Some actions concerning the use and application of pesticides and herbicides could affect agricultural practices to a limited degree.

Impacts to Fisheries

Introduction

Anadromous salmonid populations in the designated portion of the Sandy River will be affected by the amount and quality of habitat available, the amount of riparian protection provided, the management strategy adopted by ODFW regarding emphasis on wild or hatchery stocks, and the angling regulations that prevail in the designated segment. This section considers, by alternative, how fish populations would be affected by these parameters. It does not consider effects from activities occurring above the designated section of the river.

Fish Management Actions Common To All Alternatives

In all alternatives, the plan recognizes that fishing regulations and stock management emphasis as it relates to mix of hatchery stock and wild stocks of species is the responsibility of Oregon Department of Fish and Wildlife (ODFW). This plan does make recommendations to ODFW on various stock management strategies and effects are estimated as if those recommendations were to be carried out. If ODFW undertakes a different management strategy than is proposed in this document, effects may be different than what is listed below. In addition, continued efforts to improve the anadromous fisheries of the Sandy River are outlined in the plan and will occur in all of the alternatives.

Alternative A

The absence of provisions for new recreation facilities, campgrounds, trails and public access points in this alternative would limit degradation of riparian/fish habitat. However, no effort would be made to establish a carrying capacity for recreation along the river, and unregulated public use of streamside areas may cause some habitat degradation. Limited anadromous fish habitat improvements on BLM lands, emphasizing wild stock production, would somewhat benefit wild salmonid stocks. Motorized boating would continue to be restricted within the designated segment, which would prevent fish habitat degradation (bank erosion) caused by boat wakes, and would probably cause no change in the sport harvest of fish within the designated segment. Under this alternative, it is assumed that application for minimum instream water rights for fish would be made by ODFW. Unprotected or unmonitored minimum flows could limit salmonid production at either the migration, spawning or rearing stages of salmonid life history due to low flow conditions in summer and fall.

Limited improvement of anadromous fish habitat on BLM-administered lands along the main stem and the upper portions of several tributaries, would somewhat increase the quantity and quality of spawning and rearing habitat.

Alternative B

Increased levels of agency/ranger patrols and enforcement (by State Police cadets) of fishing regulations would probably reduce the illegal take of fish (i.e., takes exceeding bag limits, fishing from boats on the upper river and so forth). The closure and rehabilitation of existing dispersed camping sites along riparian areas would reduce the levels of riparian/fish habitat damage currently existing. Under this alternative, motorized boating would continue to be restricted in the designated segment. Increased recreational and angling use may result in an increase in the sport harvest of fish, particularly if angling from boats is allowed. The use of signs, brochures and increased patrols to inform visitors about resource protection and fishing will enhance public awareness of fishery issues, and may improve the fishery indirectly. If the application for minimum instream water rights for fish and recreation values is successful and flow monitoring occurs, fish populations would benefit from the maintenance of summer and fall flows adequate for migration, spawning and rearing, ensuring that critical stages of salmonid life history would not be limited by low flow conditions.

All alternatives call for improvement of anadromous fish habitat on the main stem and several tributaries, which would increase the quantity and quality of spawning and rearing habitat, and probably increase the number of returning adult fish. However, this alternative emphasizes the benefits to hatchery stocks and improvement of the sport fishery. The recommendation that ODFW increase releases of hatchery fish to make more fish available for sport harvest, if successful, may have a detrimental effect on the remaining wild stocks.

Alternative C

The expansion of boundaries to include the lower portions of Trout, Gordon and Walker Creeks would provide additional protection to important spawning and rearing habitat. As in Alternative B, additional patrols and enforcement would be provided, with a probable reduction in the illegal take of fish (i.e., takes

exceeding bag limits, fishing from boat on the upper river and so forth).

As in Alternative A, no new recreational facilities or trails would be developed, and motorized boat use would still be restricted, limiting degradation of existing riparian/fish habitat. However, the lack of an effort to establish a recreational carrying capacity (also in Alternative A) may result in increased habitat degradation due to some heavily used locations. A limited visitor information effort would provide signs to inform visitors about resource protection and fishing would slightly increase public awareness of fishery issues.

As in Alternative B, the application for minimum instream water rights for fish, if successful, would ensure adequate summer and fall flows for migration, spawning and rearing. The watershed enhancement projects, conducted to rehabilitate trails and roads to reduce sediment and runoff, would improve the quality of salmonid spawning gravels. The enhancement projects would also increase the potential for benthic invertebrate production, the primary food base of juvenile salmonids.

BLM would pursue funding for an Instream Flow Incremental Methodology (IFIM) study to be conducted to determine minimum/optimum fish flows for the summer and fall months. Studies could include additional transects and temperature information. The study would result in greater awareness of fish habitat needs and water requirements. The angler education program would increase angler's awareness of fishery issues, probably reducing poaching and inadvertent fishery violations. The potential of anadromous fish utilization and rehabilitation in the Bull Run River below the headworks dam would be investigated. If feasible, approximately 5 and 1/2 miles of river habitat could be opened for anadromous fish production.

The anadromous habitat improvements that would be made on the main stem, as well as on Trout, Gordon and Walker Creeks (as in Alternative B), would emphasize production of wild stocks, especially those at risk. The following recommendations made to ODFW would benefit wild stocks, if implemented: (1) change sport fishing regulations to protect wild stocks; 2) gather information on remaining native species to determine status, distribution, habitat use and limiting factors; 3) mark all hatchery salmon and steelhead and implement a catch-and-release program for all wild salmonids or stop all hatchery releases in the drainage.

The elimination of hatchery releases could reduce the quality, extent and opportunity for the sport fishery. The monitoring of grazing, timber harvest and agricultural practices within the river corridor would lessen the likelihood of destruction of riparian/fish habitat or water quality. Enhancement of beaver habitat within the corridor, as well as restriction of beaver trapping, could benefit salmon populations because beaver dams provide excellent rearing habitat for juvenile salmon, particularly coho.

Alternative D

In this alternative, although boundaries would be expanded to incorporate the lower portions of Trout, Gordon and Walker Creeks, less acreage in Trout and Gordon Creeks would be incorporated. This would leave more area open for timber harvest or other development and offer less protection to the tributary riparian zones and fish habitat. Moreover since fewer landowners would be within the boundaries, BLM would not be able to work cooperatively on restoration projects.

As in Alternative B and to a lesser extent Alternative C, the increased agency/ranger patrols would help enforce fishing regulations and would benefit fish populations. As in Alternatives A and C, the restriction of motorized boats in the designated segment would minimize fish habitat degradation due to bank erosion by boat wakes. As in Alternative B, the development of a comprehensive visitor/angler education program which includes sign posting, publication of materials, increased visitor contact and other actions would help to inform visitors about resource protection and fishing, resulting in indirect benefits to fish habitat and populations.

Application for and monitoring of minimum instream water rights for fish, if successful, would ensure adequate summer and fall flows for fish migration, spawning and rearing. Stream bed and bank work to improve fish habitat, as well as watershed enhancement projects to reduce sediment and runoff, would be conducted as stated in Alternative C and would benefit habitat extent and capability.

An IFIM study would be conducted to determine minimum/optimum fish flows for the summer and fall months (complimenting previous studies). The implementation of an angler education program would increase angler awareness of fishery issues. The potential of anadromous fish utilization and rehabilitation in the Bull Run River below the headworks dam would be investigated as indicated under Alternative C.

These recommendations are made to ODFW and some are currently in place: 1) change sport fishing regulations to protect wild stocks; 2) mark all hatchery salmon and steelhead; 3) implement a catch-and-release program for all wild salmonids; 4) gather information on remaining native species to determine

status, distribution, habitat use and limiting factors; 5) emphasize management that would improve production of wild salmonids while providing close to existing levels of consumptive fishing; 6) enact closures to protect native stocks at risk; 7) limit releases of anadromous hatchery fish above Marmot dam to spring chinook and summer steelhead; 8) use sterile hatchery stocks; and 9) increase monitoring of fish populations to determine if management actions are effective at enhancing wild populations and minimizing competition between native and hatchery stocks.

As in Alternative C, monitoring of development, grazing, timber harvest and agricultural practices within the corridor would minimize riparian/fish habitat degradation by those land use activities. The beaver habitat enhancement and trapping restrictions as directed in Alternative C, would benefit juvenile salmon.

Impacts to Recreation

Introduction

Recreation opportunities are made up of the physical and biological environment (including the character of the landscape, level and type of development present, and fish, wildlife, and vegetation types), the social environment (the amount and type of people who use the recreation setting, what activities they engage in, and what type of experiences they have), and the managerial environment (the level, type, and location of public access, facilities, and improvements, interpretation and education efforts, and regulations).

Changes in any of these characteristics could change the type of recreation that takes place in a recreation setting such as the lower Sandy River corridor. Interpreting the significance of these changes requires sound baseline data on recreational use of the river corridor. These types of baseline data currently are not available for recreational use on the lower Sandy. Without good data, it is difficult to judge the magnitude and significance of changes in recreational use of the river or to judge the effectiveness of management. This lack of data makes it difficult to be very specific about the effects of each alternative on some recreation opportunities.

Recreational experiences and opportunities may be affected by a number of factors, including land use activities such as logging, wildlife and fishery management, amount of residential, commercial and facility development. Additionally, the quality of the recreation experience is influenced by the level of recreation use (crowding), the degree of regulations, and competition for resources or other types of conflicting recreation activities occurring in the area.

Early in the planning process for the Sandy River, several issues were identified regarding recreation:

- How management of Dodge Park should be changed to improve the condition of the park and the quality of the recreation experience.
- How increasing recreational use along the river would affect private property owners, fish and wildlife, and riparian vegetation and the quality of the recreation experience.
- Where and what types of access and/or trails would be provided or improved for river users.
- What interpretive, information and education efforts can be done to enhance visitor experience and reduce environmental impacts.
- What management efforts can done to deal with current litter, poaching, and trespass problems.
- What type of fishing experience should be provided to anglers along the river.

Recreation Management Actions Common To All Alternatives

Under all alternatives it is assumed that recreation use levels, as well as demand for recreational opportunities, will continue to increase proportionate to growth of nearby metropolitan populations. Recreation demand is projected to increase between 3 and 10 percent each year. Therefore, recreation use levels will increase accordingly if no other management actions influence recreation use patterns or levels.

It is assumed under all alternatives, Dodge Park, Oxbow Park and Dabney Park would continue to be under the authority and be managed by the Portland Water Bureau, Multnomah County and Oregon State Parks, respectively. Differences in how activities or management of these major facilities would occur, especially as they relate to coordination of efforts or recreation monitoring, is addressed under each alternative analysis.

Also under all alternatives, commercial recreational uses on the river such as guiding and outfitting will be subject to permit by the Bureau of Land Management. Permitting of commercial activities is required under Wild and Scenic River management guidelines. Search and rescue operations would continue to be conducted by the Multnomah or Clackamas County sheriff departments.

Recreation Management Emphasis, Use Levels And Monitoring

Alternative A

There would be little change to current recreation management emphasis along the river. As in all alternatives, Dodge Park, Oxbow Park and Dabney Park would continue to be managed by the Portland Water Bureau, Multnomah County and Oregon State Parks, respectively. As described above, the number of people camping, fishing, boating, and participating in other activities along the river is expected to increase. The lack of coordinated management means that any increases in use would be uncontrolled. Physical impacts would likely include ground disturbance, bank erosion, litter, fire rings and other problems. The potential for a greater number of incidents of recreation-related trespass, vandalism, and wildfires would increase. Competition and conflict between recreationists for river access, fishing holes, campsites and use areas also could increase with unregulated use. The river currently appears to be below its capacity for recreational use, so these problems may not become substantial in the short term. However, long-term unacceptable impacts could occur without additional management.

There would be no coordinated effort made to conduct recreation surveys or studies to establish a carrying capacity or limits of acceptable change use levels. No coordinated attempts would be made to determine user preferences or recreation needs. This would result in a general lack of information for future planning efforts concerning river-related recreation use and users. Minimum levels of management presence or lack of ranger patrols along the river could result in increasing rates of degradation to the riparian resource and a gradual increase in the number of illegal incidents such as poaching, trespass and litter or trash dumping.

Fishery stock management emphasis would continue the current mix of hatchery and wild stocks. This would result in little change in angler type and some increase in use levels. Current limited ODFW management presence (occasional State Police Game patrols) and regulation enforcement could result in slight to moderate increases in illegal fishing or poaching.

Limited agency presence (other than Oxbow Park) and monitoring may also result in a slight to moderate degradation of the recreational experience due to lack of visitor contacts for information, safety and interpretive purposes.

Alternative B

Primary management emphasis would be enhancement of recreational opportunities along the river. Management would be designed to maintain existing non-motorized recreation opportunities rather than to create new or different opportunities.

Recreation use levels could increase slightly above the level described under Alternative A because of limited improvements in access and facilities. Actions such as coordinated management efforts, recreation use monitoring, site stabilization and enhancement, improved signing and information, increased interpretive and education efforts should reduce much of the impact that any increase in use would cause at both developed and dispersed recreational sites along the river. The additional monitoring and coordinated management would increase the likelihood that increases in use levels or other changes could be addressed before problems were evident.

Increased levels of patrols and monitoring would provide an opportunity to identify and correct management problems earlier than as indicated in Alternative A. Patrols should also increase the level of regulation enforcement, reduce poaching, and other impacts to fish and wildlife populations. There would be an increase in the number of hatchery release summer steelhead available for sport fishing since the fishery management emphasis would be to maximize this sport fishery. This could result in slightly more crowded conditions and somewhat greater impacts to the riparian environment at easily accessible or heavily used areas.

Directing recreationists toward new or existing public access sites through limited signing and information would reduce impacts to private lands, reduce incidents of trespass and help reduce the likelihood of conflicts between recreationists. In addition, increased patrols and visitor information and signing should enhance safety of visitors.

Recreation surveys and instream flow studies would help provide additional information that could contribute to the protection or management of flows for recreational boating and the sport fishery.

Alternative C

Primary management emphasis would be protection of natural resource values along the river and minimizing and reducing recreational opportunities. These actions would include closing or limiting access to fragile areas or during critical seasons to protect wildlife, vegetation or fish.

Recreation use levels would be expected to increase at a slower rate than Alternative A due to greater limits and possible site or area closures or restrictions. Additional monitoring above current levels would be undertaken to evaluate effects of recreation management activities on the river resources, primarily vegetation, fish and wildlife. Similar to Alternative A, no additional patrols or enforcement would occur resulting in slight increases in incidents of poaching, trash dumping, trespass, litter and vandalism.

Protection and enhancement of native fish species would be emphasized over maximizing the sport fishery which would reduce the amount of harvestable fish in the river. This could result in a reduction in numbers of anglers, reduce occurrences of crowding and somewhat reduce impacts to the riparian environment. As in Alternative A, parks and facilities would be managed the same as they currently are and would not provide any of the additional opportunities present in Alternative B, such as improved public access and day use areas (toilets, parking or signing) or interpretation and information services or materials.

Alternative D

Recreation would be managed similarly to Alternative B but there would be less of an emphasis on providing recreational opportunities along portions of the river where other resource values are considered to be more important.

Recreation use levels would be expected to increase at levels similar to Alternative A but more slowly than Alternative B. The public areas where most of the recreation use currently takes place would be improved, but other areas would be managed to maintain primitive and natural conditions. Indirect management measures such as signs and visitor education would be favored over direct regulations such as restrictions on use levels, which would be used only if indirect measures failed to achieve the desired goal.

Directing recreationists toward public access sites would help reduce impacts to private lands and incidents of trespass. Landowners continuing to have problems would have a central, coordinating authority to contact, so they wouldn't have to assume an enforcement role. Purchase of willing seller easements or lands to minimize the impacts of activities such as timber harvest and development would reduce impacts to scenery, maintaining the river's natural character and enhancing aesthetic experiences.

Agency patrols and monitoring would, similar to Alternative B, result in a reduction of incidents of trespass, litter, vandalism, and poaching. Patrols and increased information and education efforts should also enhance the safety of visitors. The amount of fish available for summer steelhead sport fishery would be similar to or slightly lower than existing levels, resulting in somewhat less crowded conditions during high use seasons. The reason for the slight decrease from current levels would be a result of the increased emphasis on protection of the native fish species.

Improved enforcement, signing and information would enhance the recreation experience and possibly reduce impacts to riparian areas and fish and wildlife populations as well as improve visitor safety.

Public Facilities, Access And Trails

Alternative A

Only minimal improvements would be made to the existing facilities along the river by the various agencies as funding allows. No other public fishing access or day use areas will be developed to meet the demand for these types of facilities along the river.

No additional trails and no new access points to the river would be developed in the alternative. Existing trails would be maintained at Oxbow Park. No new trailhead facilities would be developed. Some user trails and dispersed campsites along the river on BLM land where there is resource damage would be closed and rehabilitated to help protect fragile riparian areas. Recreation opportunities within the river corridor would remain similar to the way they are today with some reduction in quality and an increase in recreation impacts.

Increases in recreation use combined with limited public access (especially near Dodge Park) will lead to continued problems with trespass and litter on private land. There will also be an increased demand and competition for the existing dispersed camping sites along the river and increased crowding at those sites.

Increases in unregulated recreation use will result in more litter along the river and possibly result in an accelerated loss of vegetation and erosion adjacent to high use areas. Potential for human-caused fire will also increase.

Alternative B

This alternative would provide the highest level of public access and day use area improvements of all the alternatives. Greater or improved public access to the river would tend to reduce incidents of trespass, improve opportunities for hiking and improve recre-

ational access/opportunities for the physically challenged. The construction of barrier-free fishing facilities along the river, along with improvements including sanitation and toilet facilities, would provide additional and higher quality day use opportunities to all recreationists, including those with disabilities.

Coordinated and intensified management of Dodge Park would improve the condition and quality of the experience at that facility. Improving trailheads and access points to the river, including the provision of toilets, will reduce sanitation problems and improve water quality. By improving a few key access points along the river and directing the public to them, much of the existing and future public demand for additional access will be met. Many of the remaining dispersed sites and multiple trails would either be identified and hardened or closed to reduce further resource damage. As with Alternative A, there will be an increased demand for dispersed camping sites. Greater levels of public education, patrol and enforcement efforts should minimize the adverse impacts that would be experienced in Alternative A. In addition, some of the public education effort would inform the public of other recreational opportunities available outside of the river corridor, lessening the amount and impacts of increased use by channeling or directing visitors to other areas.

Trespass problems currently experienced by private landowners should be reduced through the increased number of appropriate public access points along the river and improved signing and public education efforts.

Alternative C

Same as stated in Alternative A, no additional facilities would be provided. Recreation opportunities would remain similar to the way they are today. However, some recreational opportunities may be curtailed if certain areas are closed for resource reasons.

No new trails would be developed to or along the river in this alternative but there would be toilet facilities developed at heavily used access areas or trailheads if water quality problems were identified. Additional site or trail restrictions or closures at heavily impacted areas or critical habitat areas would reduce some existing resource damage including a reduction in multiple trailing, erosion, and water quality problems.

The few remaining acceptable sites would be identified and hardened to reduce further resource impacts. The limited public education and interpretive signing done under this alternative should also somewhat reduce adverse resource impacts.

Alternative D

Dispersed sites where there is excessive resource damage would be closed and rehabilitated, though not as many sites as in Alternative C, improving the natural condition of the riparian environment and reducing impacts to fish and wildlife habitat.

As in Alternative B, greater levels of public education, patrol and enforcement efforts should minimize the adverse impacts at developed facilities. In addition, some of the public education effort would inform the public of other recreational opportunities available outside of the river corridor, lessening the amount and impacts of increasing use by channeling or directing visitors to other areas.

Also as identified in Alternative B, coordinated and intensified management of Dodge Park would improve the condition and quality of the experience at that facility. Limited improvements at some trailheads and access points to the river, including the provision of toilets, will reduce sanitation problems and improve water quality in those areas.

Interpretive Services, Signing and Public Information

Alternative A

With no new interpretive materials and signing being developed, the potential to educate the public about the river and its values, including how to better protect those values would not be realized. It is likely that many resource problems that could have been reduced if an interpretive/education program had been developed would remain. These problems include trespass, littering, illegal fishing, erosion, damage to vegetation, and increased potential for wildfire.

Alternative B

This alternative provides that highest level of interpretive opportunities of all the alternatives with the development of new interpretive programs, panels, and brochures. The development of a comprehensive interpretive and public information/education plan would ensure that interpretive efforts along the river would be coordinated and complement each other. Interpretive and visitor education efforts would inform the public about the river and its values as well as actions they could take to reduce conflicts with other users and better protect the resource. This should result in enhancing recreation experiences and reduce some of the existing resource problems and damage

along the river. Opportunities for environmental education programs would also be enhanced.

Alternative C

Minimal information and educational opportunities would be developed under this alternative although efforts would be made to coordinate information through a cooperative public education and information plan. Any educational material developed would focus on information related to the protection of river values, reduction of conflicts with private landowners and provide information about alternate recreational opportunities away from the river to reduce public use along the river. Because of this emphasis, rates in the increase of recreation use along the river should be lower than all other alternatives.

Alternative D

Similar to Alternative B but fewer interpretive efforts would be made and visitor information materials and efforts would be about the same. As in Alternative B and to a lesser extent Alternative C, a comprehensive visitor interpretation and information plan would help coordinate agencies' efforts and increase landowner's and visitor's awareness about river resources and recreational opportunities. Future recreational use levels and impacts along the river should also be less than Alternative B since a greater emphasis would be placed on directing the public to alternate areas, other use seasons or to recreational opportunities away from the river.

Impacts on Water Quality and Quantity

Introduction

As human population within the watershed grows, the effect of management within the corridor has the potential of being overshadowed by effects of management and urban growth above and adjacent to the designated river section. Activities such as agriculture, forestry, commercial and residential development, increasing demands for water withdrawal, and recreational use and facility development located upstream from or on tributaries to the designated section could profoundly effect water quality on the river. Future growth and practices may contribute to an overall decrease in water quality. Factors of concern include increases in sediment, runoff, chemicals, and bacteria from increases in population and recreation, forestry related additions of sediment, and agricultural and stock related additions of fertilizers, pesticides, bacteria, and sediment. Consumptive demands for water will parallel population increases in the basin, and more distant Oregon cities such as Portland. The increased demand from urban areas may decrease low flows on the designated section, potentially impacting designated beneficial uses.

In addition to impacts on water quality and quantity originating from outside the designated river corridor, water quality may be affected by increased development of private structures, septic systems, agricultural lands, and recreational opportunities within the corridor. Cooperative efforts involving private landowners, county, state, and federal agencies could be beneficial in protecting water quality on the river.

Hydrology Management Actions Common To All Alternatives

State water quality regulations would apply to the Sandy River under all alternatives. Water use is controlled by the State of Oregon, and perfected water rights would be protected under state law. An instream water right would be applied for by Oregon Department of Fish and Game to protect fisheries in the river. Stream discharge data would continue to be collected by the USGS at the established station near Dodge Park. County and state regulations regarding agriculture and the use of pesticides and herbicides adjacent to streams, septic system design and location, and forestry practices would be enforced.

Alternative A

Overall, this alternative may result in a decrease in water quality over time. Increases in human population, unregulated recreation use, and consumptive withdrawals in the watershed may impact existing conditions. Recreation levels in the corridor would increase somewhat as population increases, and would have a negative impact on water quality, due to the lack of management presence. Elevated levels of trash, fecal material, and bacteria would be expected. Construction of new residences and septic systems within the corridor under current county guidelines could increase sediment, nutrient, and bacterial loads. Water quality data may continue to be collected infrequently by the Oregon Department of Environmental Quality near Troutdale, making water quality trends hard to characterize. Water discharge data may continue to be collected by the USGS at the existing station. Additional water withdrawals would decrease low flows in the corridor, potentially impacting designated beneficial uses.

Alternative B

Water quality is expected to remain static or improve somewhat within the corridor under this alternative. The recreation potential would be maximized while protecting other river values under this alternative. Expanding and improving public access areas and increases in dispersed camping in the corridor could increase trash, bacteria, and sediment levels. However, improved facilities and trails systems, rehabilitation of dispersed campsites, increased patrols, and monitoring would result in an overall improvement in water quality. Improving sanitation facilities along the river may decrease fecal and bacterial inputs. Rehabilitation of dispersed campsites would minimally decrease erosion and additions of sediment. A public education program could improve water quality over the long term. Actively seeking stream enhancement opportunities with private landowners and others would improve water quality by reducing sediment and nutrient inputs.

Restoration of damaged riparian areas and promoting retention of large woody debris in the main channel and tributaries would improve water quality in the long term by improving stream stability. Cooperative efforts with private landowners, and state agencies to rehabilitate wetlands, riparian areas, side channels, and problem areas in the corridor would increase water quality, and improve the stream channel's ability to handle large storm events.

A limited amount of additional development of private lands in the corridor is expected. The small amount of residential development could increase runoff, sediment, and chemical inputs to the Sandy River slightly. Coordination between federal, county, and private interests to enforce state and county regulations, could reduce impacts from adjacent private lands. Water withdrawals from surface and groundwater sources in the watershed could decrease low flows in the river and potentially impact designated outstanding river values. However, applying for instream water rights would protect flows for outstanding values. The corridor boundary would protect adjacent riparian and wetlands from degradation due to development.

Increases in human population, recreation, and consumptive withdrawals above the corridor can impact existing conditions. Population growth, and increases in recreation and agriculture have the potential to impact water quality in the Sandy river.

Development of a long term monitoring program will provide a basis for identifying trends in water quality. Monitoring instream flows and conducting a recreation minimum instream flow study would provide additional information for water management agencies and users to better manage water flows.

Alternative C

Water quality would improve under this alternative. A focus on watershed enhancement would improve existing conditions and favor increased water quality. Management presence would be increased to assure compliance with resource objectives. Recreation and public access would be allowed only when it did not conflict with resource values. Reconstructing trails where necessary, closing dispersed camping where riparian damage is occurring, restoring damaged riparian areas, and installing signs to educate and encourage resource conservation will help reduce sediment, trash, and human waste additions to the river.

Improving fish habitat on the main river and tributaries, expanding the river boundaries along some of the tributaries, and promoting retention of large woody debris in the channel would improve water quality in the long term by improving stream stability, and the ability of the channels to handle high flows. Enhancing habitat and establishing beavers in some of the tributaries to the Sandy River would increase bank and stream stability and improve water and sediment storage by backing up water, thereby decreasing flow velocities.

Watershed enhancement opportunities and funding would be sought, which would result in decreases in sediment and other non-point source pollutant inputs. Cooperative efforts with private landowners, and state agencies to rehabilitate wetlands, riparian areas, side channels, and problem areas in the corridor would increase water quality, and improve the stream channel's ability to handle large storms.

A limited amount of additional development of private lands in the corridor is expected. The small amount of residential development could increase runoff, sediment, and chemical inputs to the Sandy River slightly. Coordination between federal, county, and private interests to enforce state and county regulations, could reduce impacts from adjacent private lands. The corridor boundary would protect adjacent riparian and wetlands from degradation due to development. Water withdrawals from surface and groundwater sources in the watershed could decrease low flows in the river and potentially impact designated outstanding river values. However, applying for instream water rights would protect flows for outstanding values.

Development of a long term monitoring program will provide a basis for identifying trends in water quality.

Conducting instream flow studies for fisheries to complement previous instream flow studies would provide additional information for water management in the basin.

Alternative D

Water quality would be expected to increase under this alternative. Recreation and facilities would be improved and expanded while protecting resource values. Agency presence and patrols would increase over present levels, but would be less than in Alternative B. Providing sanitation facilities, installing signs to educate and encourage resource conservation, reconstructing or realigning trails where needed, closing dispersed camping where riparian damage is occurring, and restoring damaged riparian areas will reduce sediment, trash, and human waste additions to the river.

Improving fish habitat on the main river and tributaries, expanding the river boundaries up some of the tributaries, and promoting retention of large woody debris in the channel would improve water quality in the long term by improving stream stability, and the ability of the channels to handle high flows. Enhancing habitat and establishing beavers in some of the tributaries to the Sandy River would increase bank and stream stability and improve water and sediment storage by backing up water thereby decreasing flow velocities.

Watershed enhancement opportunities and funding would be sought, which would result in decreases in sediment and other non-point source pollutant inputs. Cooperative efforts with private landowners and state agencies to rehabilitate wetlands, riparian areas, side channels, and problem areas in the corridor would increase water quality, and improve the stream channel's ability to handle large storm events.

A limited amount of additional development of private lands in the corridor is expected. The small amount of residential development could increase runoff, sediment, and chemical inputs to the Sandy River slightly. Coordination among federal, county, and private interests to enforce state and county regulations, could reduce impacts from adjacent private lands. The corridor boundary would help protect adjacent riparian and wetlands from degradation due to development and provide the opportunity for cooperative enhancement projects and monitoring. Water withdrawals from surface and groundwater sources in the watershed could decrease low flows in the river and potentially impact designated outstanding river values. However, working with state agencies in applying for instream water rights would protect flows for outstanding values.

Development of a long term monitoring program will provide a basis for identifying trends in water quality. Conducting instream flow studies for fisheries and recreation to complement previous instream flow studies would provide additional information for water management in the basin.

Impacts to Wildlife

Introduction

Impacts to wildlife from each of the four proposed management alternatives depend primarily on the effects these alternatives have on recreation and land use along the river. Each alternative also would provide different programs, monitoring and levels of funding to identify and preserve wildlife habitat.

Increased recreational use of an area, residential construction, logging or other land use activities can alter the extent, structure and composition of habitat, potentially decreasing local populations of wildlife species. The resulting changes in wildlife distribution and habitat use can be temporary or long-term. Increased recreational use also can increase the risk of wildfires.

Wildlife Management Actions Common To All Alternatives

Under all alternatives it is assumed that recreation use levels as well as residential development and land use practices will continue to increase or intensify along with the growing metropolitan populations. Therefore, impacts to wildlife will increase accordingly if no other management actions influence recreation or development.

It is assumed under all alternatives that all lands would continue to be under the authority and be managed by the particular public authority or private landowner. Differences in how activities or management of wildlife habitat or populations would occur, especially as it relates to coordination of efforts or monitoring, is addressed under each alternative analysis.

Officially listed rare, threatened or endangered wildlife species will continue to be monitored on public lands and protected under the authorities of the Endangered Species Act.

In all alternatives, the plan recognizes that wildlife populations and management is the responsibility of ODFW. This plan does make recommendations to ODFW on various management strategies and moni-

toring efforts and these are estimated as if those recommendations are carried out as recommended in the Wildlife section. If ODFW undertakes a different management strategy than is proposed in this document, effects may differ from what is listed below.

Alternative A

Critical old growth and late seral forest, wetlands, and riparian areas would remain largely unaltered under the implementation of a No-Action plan. The great majority of lands containing these habitats are managed by The Nature Conservancy, the Bureau of Land Management, The State Division of Lands, or by Multnomah County Parks Department, and are currently off limits to timber harvest and most types of large scale development.

The State Scenic Waterway designation in place on the rest of the 1/4 mile corridor proposed by this action allows for minimal development within other types of habitats contained in private lands which connect critical areas. Little to no recent habitat degradation is evident either from the river itself, or from the examination of recent aerial photos (1989).

Enforcement of current state and county land use laws appears to be providing adequate protection to corridor habitats outside of currently preserved areas as most of the land is zoned for timber or agricultural uses.

Little or no impact to federally protected species would occur under the implementation of this plan, although increased unregulated bank and boat fishing could disrupt feeding habits of wintering Bald Eagles along the river. The Red-legged Frog, a candidate species for federal protection, is known to breed in the gorge but appears to be adequately protected under the current wetlands management policies of various public agencies.

Potential habitat for the federally endangered Peregrine Falcon, the federally threatened Northern Spotted Owl, and federal candidates Harlequin Duck, Goshawk and Mountain Quail (none are known to breed in the gorge) should remain largely unaltered under current management policies.

Habitat for several ODFW State Sensitive species found within the Sandy River Gorge would remain largely unaffected by this alternative. However, removal of snag trees as hazards to public park users may eliminate potential cavity nest sites for Pileated Woodpeckers and Pygmy Owls. Private landowners unaware of this affect may also inadvertently remove potential nest trees due to hazard concerns.

No impact to State Sensitive herpetofauna known to occur in the Sandy River Gorge is anticipated.

Ospreys should continue to breed successfully with little to no impact from increased river use. The lack of any sort of pro-active consultation program directed toward private landowners could result in the loss of some snag trees suitable for nesting and perching by raptors, but this impact would probably remain minimal.

Conflicts regarding land usage by elk, private landowners and nurserymen would continue to be dealt with by ODFW, affected landowners and agencies. Thinning of herds by live trapping and relocation would probably continue. Loss of corridor habitat into the gorge through Gordon, Buck, and Trout Creeks may continue if timber harvest is allowed along these waterways to within the 1/4 mile of the bed and bank.

Public awareness of wildlife issues would remain at the discretion of Oxbow Park and its interpretive staff.

Alternative B

The effects of this alternative would be similar to Alternative A, with the exception of some additional habitat loss due to recreation facilities development.

Additional snag tree removal may occur to insure the safety of an anticipated increase in the number of Gorge users. Wetland habitat and its vegetation could suffer increased impacts as river users establish additional incidental social trails. Songbirds and waterfowl in riparian zones could suffer additional disturbance during critical nesting seasons as an increased number of river users disperse from the riverbanks.

Bald Eagles could be discouraged from entering the Gorge for winter feeding if isolated perching areas become unavailable due to increased fishing by boat and by a well established river trail.

Expanding corridor boundaries to include scenic values would assist in protecting some additional non-critical habitat not included in Alternative A.

Opportunities for public awareness of wildlife issues could increase under this alternative, which may help to mitigate potential habitat disturbance by river users. Increased management presence would serve to decrease opportunities for poaching of game species and discourage habitat degradation incidental to other river activities. However, increases in recreation use levels may disturb wildlife to a somewhat greater extent than in Alternative A.

Alternative C

This alternative would have essentially the same impact to critical habitats as Alternative A, except that some opportunities for habitat enhancement as well as monitoring, with special emphasis on federal and state endangered, threatened, and sensitive species, would be pursued.

Snag tree retention would be emphasized in all public use areas where these trees are of no direct threat to public safety. Impacts to riparian vegetation would be minimized by not facilitating, or even discouraging increased public use of these areas. Technical assistance provided by BLM to private landowners to develop their properties with minimum impact to wildlife may help to preserve additional potential perch and nest-tree snags. Removal of invasive, non-native vegetation would enhance native plant communities and may result in conditions more favorable to native breeding bird species (especially songbirds) more specialized in habitat needs.

Winter roosting and feeding by Bald Eagles may increase if river use is limited to more accessible bank areas and boat traffic is restricted.

Elk herds would be allowed to function in more natural cycles. Landowners and nurserymen would be assisted by BLM to protect property from browse damage. Inclusion of additional corridor habitat along Trout, Gordon, and Buck Creeks may provide additional cover as animals migrate in and out of the river corridor.

Opportunities to increase public awareness of Sandy River Gorge wildlife issues and mitigate habitat impacts from use would be maximized under this alternative, as would opportunities for research on undisturbed native plant and animal communities.

Alternative D

This alternative would have the same impacts as Alternative C, with slightly less emphasis on easement acquisition and mitigation technical assistance on private lands. It would incorporate many of the same opportunities for habitat enhancement as well as monitoring, with special emphasis on federal and state endangered, threatened, and sensitive species, as under Alternative C would be pursued.

Some dispersed camping within riparian areas would be permitted when no adverse impacts to wildlife or habitat are anticipated. No additional impacts are anticipated due to the implementation of this alternative.

Impacts to Vegetation

Introduction

Trends for plants and associated habitats are difficult to adequately assess. Habitats within alternative boundaries and the protective measures of each alternative are important, but may not address biological processes on a community scale. Impacts to most plants and habitat on the Sandy River are cumulative, originating both within and outside the designated river corridor. Impacts to plant species and habitats from each of the four proposed management alternatives depend primarily on the effects these alternatives have on recreation and land use along the river. Each alternative also would provide different programs, monitoring and levels of funding to identify and preserve botanical habitat.

Increased recreational use of an area, residential construction, logging or other land use activities can alter the extent, structure and composition of habitat, potentially decreasing local populations of plant species or communities. The resulting changes in plant distribution and habitat use can be temporary or long-term. Increased recreational use also can increase the risk of wildfires.

Since the alternatives do not propose many changes that would effect plant species or communities on public lands, the effects of the alternatives are analyzed as they relate primarily to private lands and will be based on the observed trends of private land management and use.

Botanical And Ecological Management Actions Common To All Alternatives

Under all alternatives it is assumed that recreation use levels as well as residential development and land use practices will continue to increase or intensify along with the growing metropolitan populations. Therefore, impacts to vegetation will increase accordingly if no other management actions influence recreation, land use or development.

Officially listed rare, threatened or endangered plants will continue to be monitored on public lands and protected under the authority of the Endangered Species Act.

It is assumed under all alternatives that all lands would continue under the authority and management of the particular public authority or private landowner. Differ-

ences in how activities or management of vegetation habitat or populations would occur, especially as it relates to coordination of efforts or monitoring, is addressed under each alternative analysis.

Alternative A

This alternative, more than any other, would allow less connectedness in the management of public versus private lands on the river corridor. In general, diversity would be reduced on private lands because residential development and land use activities would likely continue at present rates. The collection of baseline information on plants and communities is not likely to occur on private lands, and land fragmentation would likely occur where natural forests and meadows are broken up into smaller parcels of land and/or converted to other uses. Therefore, the assessment of future activities on private lands and associated impacts on threatened or rare species (or communities), with the exception of lands owned by The Nature Conservancy, are not as likely to be monitored.

On public lands, only current levels of botanical and ecological inventory and monitoring would occur on BLM lands as outlined in the Sandy River Gorge ACEC plan. There would be less opportunity to advance technical monitoring agendas applying to most riparian-wetland zones or rare habitats (or potential problems to rare and sensitive plant communities) on other public lands because baseline funding would not be available. Fragile riparian or island habitats would not receive detailed monitoring especially for the protection of flora in high recreational use areas, and the protection and enhancement of rare plant communities would be curtailed. Important inventories for Cimicifuga elata and other riparian/wetland rare species would be limited. The easement acquisition and rehabilitation of critical habitat areas would not occur. Educational programs to enhance the wise use of natural features by landowners would not take place, possibly resulting in gradual and incremental degradation on private lands. The rehabilitation of disturbed (or degraded lands) on the river corridor would not be carried forward and fire protection agreements would not be updated.

The impacts of this alternative are dependent upon current state and county regulations, levels of enforcement curtailing land use activities and upon the current management guidelines of a cross-section of various federal, state, and civic agencies and organizations.

Alternative B

Human activity associated with recreational use along the Sandy River could be negligible or substantial, depending upon private land management and increased public access to the river. However, high use recreation sites would be monitored to determine the level of impacts on the river's riparian and island habitats, and upland zones with trails. This could result in enhancement of habitat near these use areas.

Presently, the river's proximity to a major urban center provides an important component to the region's recreational opportunities spanning a spectrum of such opportunities from public parks to boating activities, and crowds of people during hot summer days. The high recreational use visibility, on the one hand, increases the chance for public interpretive and educational enhancement. On the other hand, this visibility may allow use of fragile eco-system areas to the point that they are degraded. Increased recreational use anywhere along the river is likely to somewhat impact vegetation on private or public lands even with restrictive buffers and measures. Impacts can include habitat alteration from off-road vehicle use, trails, introduction of litter, bank erosion and the general impact of human presence. However, the degree of impacts or plant community displacement would be related to the amount and timing of human activity.

An increase in the amount of visitor days to fragile zones like wetlands, sandy beaches, and island habitats can cause unfavorable impacts to sensitive and rare plant species. Successional plant communities can also be changed by too much human pressure, especially in fragile eco-niches. An eco-niche is the particular habitat that is needed by a certain plant or animal. However, a benefit of the alternative would be the inventory and monitoring of recreational areas (and sites) in order to determine access restrictions to protect critical areas on public lands, if necessary. Agreements would be established with willing landowners to inventory and monitor habitats on private lands. Also, a fire management plan would be prepared in conjunction with local authorities in order to protect the river corridor against recreationally caused wildfires.

Alternative C

This alternative would provide for the greatest level of protection, inventory, and monitoring of rare plant species and fragile plant communities along the Sandy River corridor. It would also allow for the potential natural diversity of the area to be enhanced through natural ecological processes. Using only natural

ecological processes would result in slower change, but would assure that known and unknown ecological relationships and communities would be provided for. Although fire is a natural ecological process, wildfires would not likely be left to burn due to the close proximity to private lands. However, prescribed fires could boost the ecological health of selected areas. If natural processes are allowed to occur, some late successional and old-growth plant communities would persist within the designated river boundary. Any increases in late successional communities would provide continuing balance with the early successional stages found on private lands. Therefore, connectedness between public and private lands on the river would be maintained with this alternative.

Though recreational activities would occur under this alternative, there would be less increased impact on plant communities because access would be centered around currently used sites. Also, the recreational impacts to riparian and upland habitats would be monitored and if necessary, recreation use restricted. There would also be an evaluation of fragile wetland and island habitats in each season of the year for potential critical areas protection. An increased chance of sensitive plant protection against adverse impacts would be fostered because inventory and monitoring agendas would signal the extent of such species along the river and their level of health. Also, the conservation and protection of rare plant species would be enhanced through landowner conservation agreements, willing seller easements or purchase, as well as distribution of educational materials and technical assistance to landowners concerning the identification and maintenance of important habitats and plant communities. Exotic species control programs would be fostered with state and local authorities via the specifications of this alternative.

To summarize, this alternative would result in fewer impacts to plants and animals and their habitats as a result of less human activity and increased scientific knowledge about the ecology of the corridor. Therefore, more options would be available in the future for managing biological diversity.

Alternative D

The management objective under this alternative would be to maintain, protect, and enhance the biological values of the Sandy River system by limiting other uses to a level that would not degrade these values. For example, recreational development would be planned to minimize impacts to the natural environment. Regimentation and on-site controls would be obvious features of this alternative in order to protect and enhance the natural environmental characteristics of the river corridor. The character of the river zones would remain in a generally natural-appearing condition by limiting facility development and by controlling access on public lands. This alternative offers selected restrictions to allow natural resource conditions to improve. An example would be that critical ecological areas on public lands would carry access restrictions to entry according to limits determined by monitoring and inventory as in alternative C. Normally, enhancement values for the protection of natural values would override but not stop other uses.

Similar to Alternative C, this alternative will require critical monitoring evaluations at fragile ecological sites throughout the river corridor, such as at the BLM old-growth ACEC, river island habitats, riparian-wetland zones, rare plant sites, and wet cliffs. Inventory and monitoring of all such critical habitats are provided for under this alternative. Also, the same enhancement opportunities for the conservation of natural values on public and private lands as discussed in Alternatives B and C are also provided. However, some opportunities for the protection of natural land values will be dependent upon future trends in private land management.

Impacts to Visual Resources

Introduction

Scenic quality on the lower Sandy River is extremely high. There are very few intrusions on the natural landscape by man-made structures and disturbances. Development and land use activities can contrast with existing riverscape, pastoral and forest settings as seen from the few roads, river shoreline recreation areas, and houses within the corridor. Activities such as timber harvest, agricultural activities, vegetation removal, rip-rapping or erosion control, residential development, road construction or alignment, recreation site development and, to a much smaller degree, recreation uses which degrade vegetation all can have an impact on the visual quality of the resource.

The current level of development is reflected by the river's federal classification as Scenic in the upper reach and Recreational in the lower reach, below Indian John Island (see chapter I). Assessment of the impacts under the four management alternatives include evaluation not only for preservation of existing character but also for potential enhancement of visual quality. Therefore management actions were analyzed for their ability to provide enhancement and protection where visual quality problems exist, particularly in the foreground as seen from river and roads, and in the

enforcement and consistency of existing State Scenic Waterway and county zoning regulations.

For purposes of this analysis, it is not the adequacy of existing regulations that is in question but rather the efficacy and ability to enforce them. Therefore, each alternative is analyzed for its actions to enhance the effectiveness of existing regulations and provide additional protection to visual resources.

Visual Resource Management Actions Common To All Alternatives

Under all alternatives, the 1/2-mile wide river corridor (1/4 mile on each side of the river), will continue to be managed under the State Scenic Waterway administrative rules (see Chapter I) through the Oregon State Parks and Recreation Department. As mentioned earlier, the State Scenic Waterway Program is specifically designed to address visual quality of the river corridor as it is viewed from the river.

Currently adopted State Scenic Waterway administrative rules more than adequately provide for the protection of views from the river. However, two factors are significant when considering the adequacy of the existing state program to protect the river corridor's viewshed. First, the ability of State Parks to enforce the rules and keep up with residential development has been limited in the past due to understaffing and underfunding of the enforcement program. State Parks staff are often notified of infractions or problems after the damage or development has occurred and State Parks does not have sufficient staff to regularly monitor visual resources. In addition, the program lacks sufficient funding to compensate landowners for development rights and development may take place within one year if an agreement cannot be reached with the landowner. Secondly, much of the viewshed for the river is not within the 1/4 mile State Scenic Waterway boundaries. On the upper river, in the heart of the Sandy River Gorge from Dodge Park to the lower end of Oxbow Park, only about 60 to 70 percent of the viewshed acreage is within the 1/4 mile boundary. On the lower reach of the river, from Oxbow Park to Dabney Park, about 90 percent of the viewshed is within the boundaries of the State Scenic Waterway. Therefore, scenic quality in the middle ground and beyond could be impaired by residential development, particularly on horizon lines, and by large clearcuts or land conversions.

As discussed in Chapter I, each of the counties has adopted zoning ordinances which specifically comply with special state and federal designations. Overlay zoning ordinances in Multnomah and Clackamas counties recognize the natural and scenic resource values along the river and outline specific regulations to address those concerns. It is assumed that current zoning regulations and land use controls would remain in effect under all of the alternatives. However, Multnomah County defers decisions concerning all land use development to the State Scenic Waterway enforcement program. In doing so, the County does not directly enforce SEC overlays in the 1/2 mile corrior.

Alternative A

Under existing State Scenic Waterway regulations and current levels of enforcement, visual quality of the Sandy will not change dramatically. However, incremental impacts to the visual resource, primarily from residential development and vegetation removal have occurred since the regulations have been in force and can be expected to continue. Sporadic home construction on a few sites within view of the river could occur and would slightly increase the developed character of the corridor, especially along the rim on the lower reach of the river below Oxbow Park. Other man-made structures and land use practices will continue as they have in the past at very limited rates. Demand for harvestable timber will continue to rise and possibly result in increased logging on lands within the corridor. Lack of funding for the State Scenic Waterways program will limit that program's ability to acquire scenic easements or work with landowners, agencies and others in mitigating visual impacts.

Alternative B

The visual quality of the river would be somewhat improved under this alternative. Federal involvement in river management would increase the likelihood of funding for scenic easement acquisition. Better coordination between the counties, the state and the BLM could improve the enforcement of existing regulations and interagency review of development proposals would potentially reduce the number of zoning violations or issuance of variances for non-compatible uses. Increased recreation management in the form of patrols and information may reduce litter and resource damage, thereby improving visual quality. Annual clean-up efforts would also reduce the extent of trash and litter within the corridor.

Alternative C

Similar to Alternative B, the visual quality of the river would improve under this natural resource enhancement alternative. In addition to the benefits discussed in Alternative B, federal involvement would add to the

likelihood of funding for wildlife habitat acquisition indirectly protecting the viewshed. Better interagency coordination and cooperation would help to enforce existing regulations especially with the development of a county/federal river planning liaison position. Riparian enhancement projects and streamside restoration could also indirectly benefit foreground views. Agency efforts to provide landowners with information relating to conservation practices and State Scenic Waterway regulations could result in greater compliance with regulations, conservation practices and better efforts to screen or conceal developments from view.

Alternative D

This alternative would provide the greatest level of protection and enhancement of visual resources within the corridor. This alternative combines all of the benefits discussed under Alternatives B and C. Limited recreational developments and improvements of heavily used recreation sites, including Dodge Park, could improve immediate foreground views in those areas. In addition, by initiating a landowner stewardship committee to assist agencies in river monitoring, management and enhancement, the natural character of the river could be better maintained.

Impacts to Cultural Resources

Introduction

The current lack of a complete inventory and specific information of site occurrence and condition makes impacts difficult to assess. While mitigation for specific sites would be developed if disturbance to the site was detected or planned, the nature of such mitigation cannot be described at this time.

Cultural Resource Management Actions Common To All Alternatives

Under all alternatives it is assumed that recreation use levels as well as residential development and land use practices will continue to increase or intensify along with the growing metropolitan populations. Therefore, impacts to known and unknown sites could increase accordingly if no other management actions influence recreation, land use or development. All cultural resource sites are and would continue to be protected under a number of federal and state laws.

Alternative A

Archeological and historical resources would be managed and protected according to existing federal and state law. State law prohibits disturbance to Indian burial sites regardless of land ownership. Federal law provides for protection of significant sites on federal land or affected by federal projects. No surveys would be conducted except in response to proposed development or as would occur incidentally. Project-specific inventory results in evaluation of sites in an isolated context from the larger cultural environment of the corridor and surrounding area. As a result, information pertaining to a site may not be evident and would be missed in the evaluation and in any mitigation designed to recover data from the site or protect site values.

Interpretation would be minimal. While public education efforts may occur elsewhere, opportunities for providing local cultural history and site protection information to a large number of people from Portland, who are frequent users of the corridor, would not occur. Increased visitor use has the potential to cause harm, deliberate or unintended, to cultural sites and a lack of information on site occurrence and an absence of interpretation and public education on cultural resources would contribute to resource damage risk.

The knowledge of Sandy River cultural resources would be limited and site protection measures would typically not be undertaken until damage was already occurring to a known site. There would be no specific protection for sites on private land with the exception of Indian burial sites. Easement acquisition would not be an option under this alternative.

Alternative B

This alternative provides for cultural resource inventory for the purpose of recreation facility development planning. However, as in Alternative A, a comprehensive inventory would not be completed and site evaluations and mitigation/protection measures would occur in an isolated context.

Interpretation would focus on major recreation sites with the potential of reaching a large number of people. A lack of comprehensive inventory data would limit the information available to the public on the prehistory and history of the corridor and surrounding lands and cultural information would have to focus on more general themes.

An increase in visitor use and in facility expansion and construction has the potential to directly and indirectly impact sites. While excavation or data recovery could

be used to mitigate some types of impacts for some types of sites when project design alone would not avoid disturbing the site, data recovery cannot achieve 100% recovery of information or materials, so some data and material loss from sites would occur. This alternative does not provide for acquisition of easements for cultural resource protection.

Alternative C

This alternative would result in completion of a comprehensive inventory of both public and private lands upon which cultural resource management plans, site evaluations and data interpretation would be based. Site specific management could be designed that would address site protection, monitoring, and research needs. Acquisitions of easements to protect significant threatened or deteriorating cultural resource sites would be possible. Oral historical information would provide information on traditional (non-Indian and Indian) uses of the corridor and surrounding lands that are not evidenced by physical remains or features, as well as provide data to evaluate sites located as a result of the field inventory.

Opportunities to provide specific information to the public on the area's prehistory and history would be very limited. On-site interpretation would not occur and off-site interpretative messages would focus on site protection.

Site disturbance would be minimized as facility development would remain at current levels and visitor use would be directed to existing facilities.

Alternative D

Similar to Alternative C, this alternative would result in completion of a detailed field inventory for cultural resource sites. Evaluations, protection measures and interpretation would utilize this more comprehensive data base, although information on lands outside the corridor and oral history information would not be systematically collected. Acquisition of conservation easements from willing sellers would be possible for highly significant sites.

Interpretative information on area prehistory, history and on cultural resource site protection would be available at currently developed recreation sites. These locations have the potential of receiving the greatest number of users and provide a wide audience for interpretation efforts. On-site interpretation at locations other than currently developed recreation sites would likely not occur and opportunities for visitors to maximize their experience by viewing specific heritage resources would be limited.

An overall increase in visitor use would be expected, but agency presence would be less than in Alternative B, with some chance for increased indirect impacts to sites from visitors in the form of compaction, casual collection, and increased erosion.

Cumulative Impacts

Regulations implementing NEPA define cumulative impacts as:

> *"The impact on the environment which results from the incremental impacts of the action when added to other past, present and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time."*

For the lower Sandy River, the issue is whether any of the management plan alternatives contain measures which could contribute to cumulative impacts, which could be either adverse or beneficial. Following is a discussion of the most likely cumulative impacts that are relevant to the key planning issues.

1. Fisheries

The amount and quality of habitat available to anadromous salmonids, in the main stem as well as in the major tributaries, is expected to influence the stability of their populations. Therefore, the amount of habitat protection/improvement provided by the various alternatives is an important element of concern. Of possibly greater concern is the management strategy adopted by ODFW. If hatchery release programs are escalated to improve the sport fishery, there could be negative impacts on the wild populations due to competition. Another factor which could add to the cumulative effects on anadromous salmonids is the amount and type of angling allowed. Other cumulative effects on anadromous salmonids include Columbia River flow management and ocean/river harvest regulations.

The beneficial impacts to fish habitat (resulting from the decreased risk of water pollution, improved off-channel and tributary habitat and protection of minimum instream flows) under Alternatives C and D would add incrementally to the beneficial impacts of basin planning. Enhancement of anadromous fish populations and habitat will continue to be a priority in the Columbia River System and Pacific Northwest for the reasonably foreseeable future.

2. Water Quality and Quantity

Future population and recreation levels within the Sandy River Watershed are expected to increase. Commercial and residential expansion in both urban and rural areas will have a negative impact on water quality and quantity in the corridor. Increases in non-point source pollutants including, sediment, nutrients, bacteria, and chemicals are of concern. The number of people recreating in the vicinity of Mount Hood will increase as population in the northwest expands. This increase in use will impact sediment loads, fecal and bacterial inputs, and trash entering the stream.

Agriculture and forestry activities within the watershed have an impact on water quality. The level of these activities will remain constant or increase somewhat with time. Logging, site preparation, and road building increase sediment and nutrient additions to the stream. Agricultural practices increase erosion, sedimentation, and chemical additions.

The implementation of Alternative B, C, or D in this plan will result in an improvement of water quality within the corridor, while a deterioration of existing conditions would result from selection of Alternative A. Similarly, the selection of an alternative in the Salmon Wild and Scenic River Plan will affect water quality on the Sandy River. Adoption of Alternatives B through D will improve water quality conditions, while selection of Alternative A would result in deterioration over time.

Consumptive demands for water from the Sandy River, and its tributaries and groundwater system will expand as population grows in Northwest Oregon. Acquisition of instream water rights is necessary to protect the outstanding river values from degradation due to potential future water demands.

3. Wildlife, Botanical and Ecological

Exotic and noxious plants and animals are likely to be introduced into the corridor with increased human settlement and land conversion. These introduced species often out-compete the native species of a region. The results of this type of competition and loss of native species probably has greater ramifications to the balance of nature than is currently understood. Exotic plant species such as Scotch Broom and Tansy Ragwort are examples of exotic weed problems in the Sandy River Corridor.

Increased recreational use outside public lands is likely to impact public lands with or without restrictive buffers and wide boundaries. Impacts may include ecological alteration from off-road vehicle use, trails, introduction of litter, and the general impact of increased human pressure.

A review of the rare (threatened, endangered, and sensitive) plants along the river corridor illustrates species that require unique habitats. Such plants are likely inflexible in their ability to adapt to rapid habitat modification or loss. Tall Bugbane, or (Cimicifuga elata), a Bureau-sensitive species, is likely sensitive to adverse land clearing. The ecology of river islands and adjacent wetlands needs to be studied to determine impacts and threats to indigenous rare plants there. In a study by Reed College (Sillett, 1988-89) old-growth tree dwelling lichens (BLM Area of Critical Environment Concern) were being reduced by metropolitan air pollution. Lichens are especially susceptible to such pollution. Relict bio-geographic components of rare habitats (i.e. relict forests) along the river need continued study in order to further understand "direct and indirect" threats and impacts to their unique ecologies. Also, the conversion of late successional plant communities to early successional are expected to continue on private lands. So, monitoring for adverse effects to plants and their habitats will be critical to the future understanding of cumulative effects.

Adverse Environmental Effects That Cannot Be Avoided

None of the alternatives contains management directions that would directly create unavoidable adverse environmental effects. It is conceivable that the lack of additional actions under Alternative A could lead to adverse effects on river corridor resources at some time in the future, but this would depend on the nature of the threat and the ability of existing resource protection mechanisms, such as the State Scenic Waterway program and administrative rules and county zoning regulations, to address it. For example, construction of the maximum number of possible houses in the river corridor would foreclose some resource protection options as well as increase the potential for water pollution and impacts to visual resources, vegetation and wildlife. Increased conflicts between landowners and recreation visitors also could result.

Summary of Critical Elements

Critical Elements:

The following table summarizes environmental features and elements of the human environment which are subject to requirements specified under NEPA and must be addressed in all Environmental Assessments and Environmental Impact Statements (NEPA Handbook Appendix 5). The first table covers subjects required by law. The second table is a summary of the environmental effects or impacts discussed earlier in this chapter. Environmental features that would be affected or are related to relevant issues identified through scoping are described in Chapter II of the Environmental Assessment.

Environmental Feature	Environmental Effect	Remarks
Air Quality	Not Affected	
Areas of Critical Env. Concern	Affected	Addressed in text.
Cultural, Historic, Paleontological	Affected	Addressed in text.
Native American Religious Concerns	Not Affected	
Threatened or Endangered Species	Affected	Addressed in text.
Prime Farm Lands	Affected	Addressed in text.
Flood Plains	Affected	Addressed in text.
Hazardous/Solid Waste	Affected	Addressed in text.
Drinking/Ground Water Quality	Affected	Addressed in text.
Wetlands	Affected	Addressed in text.
Wild and Scenic Rivers	Affected	Addressed in text.
Wilderness	Affected	Addressed in text.

SANDY WILD AND SCENIC RIVER SUMMARY OF EFFECTS

KEY ISSUES:	ALTERNATIVE A	ALTERNATIVE B	ALTERNATIVE C	ALTERNATIVE D
LAND USE AND SOCIO-ECONOMICS	* Slight increase in service-related employment due to current population growth trends. * All alternatives will not have significant impacts on regional population growth trends. * Lack of management/monitoring could degrade water quality, fish, wildlife and botanical habitat due to increased utilization of the river's resources and pressures for land use. * Quality of life for Sandy River area residents may decrease due to increased development and controls on recreation use. * Forest management and agricultural practices would not be affected. * 75 additional houses could be built in the river corridor.	* Tourism and other service-related employment could increase. * Demand for county road/emergency services would increase. * Limited reduction of local timber supply could occur if owners opt for willing seller easements. * 5-10 potential building sites could be affected by easements. * Scenic easements on about 300 acres of land could be acquired resulting in greater protection of viewshed.	* Could limit service-related employment and revenues from tourist-related industry. * 20-25 potential building sites could be affected by conservation and scenic easements. * May increase quality of life for area residents through controlled and monitored development and increased controls on recreation use. * Impacts to forest management activities would be somewhat greater than in Alt. B. * Agricultural practices could be modified due to actions concerning use of pesticides and herbicides. * 350 to 400 acres could be affected by willing seller or conservation easements rather than visual or scenic easements resulting in greater protection of fish and wildlife habitat and natural condition of river corridor.	* Slight increase expected in tourism and other service-related employment. * Quality of life would improve through increased recreation management, law enforcement and controlled and monitored development. * County road and emergency services demand may somewhat decrease due to patrols, signing and education efforts. * 20-25 potential building sites could be affected by easements. * 300 acres of easements could affect timber harvest levels similar to Alt. B. * Agricultural practices affected slightly due to actions concerning pesticide and herbicide use.

SANDY WILD AND SCENIC RIVER SUMMARY OF EFFECTS

	ALTERNATIVE A	ALTERNATIVE B	ALTERNATIVE C	ALTERNATIVE D
FISHERIES	* Absence of provisions for new facilities, trails and access points would degrade riparian/fish habitat. * Unregulated use of streamside areas may cause some habitat degradation. * Minimal habitat improvements that emphasize wild stock production would somewhat increase the quantity and quality of spawning and rearing habitat for wild salmonids. * Continued restricted motorized boating would help prevent fish habitat degradation and disturbance from wakes in all alternatives. * ODFW would apply for minimum instream water rights for fish resulting in some additional protection of habitat.	* Monitoring, closure and rehabilitation of some existing dispersed camping sites along riparian areas would reduce riparian/fish habitat damage. * Increased law enforcement and river patrols would reduce illegal take of fish. * Increased recreational and angling use may result in an increase in the sport fishing harvest, particularly if angling from boats is allowed, seasons expanded or access improved. * Fishery improved indirectly through signage, public information materials and patrols. * Anadromous fish hatchery stock and habitat would be improved to benefit sport fishery.	* No new recreational developments would occur and would somewhat limit degradation of riparian/fish habitat compared to Alt. A. * Increased law enforcement would reduce illegal take of fish. * Unregulated recreation use and lack of an established carrying capacity would result in increased habitat degradation in heavily used areas. Other areas may be improved through closure on federal lands. * Minimal signage would slightly increase public awareness of fishery issues. * Successful water rights application and increased monitoring would help ensure adequate summer and fall flows for migration, spawning and rearing. * Watershed enhancement projects would help prevent sediment run-off, improve spawning gravels and increase food base of juvenile salmonids. * An IFIM study would result in an improved data base of fish habitat needs and water requirements. * Angler education program would somewhat reduce poaching and inadvertent fishing violations. * Potential fish utilization, flows and restoration in the Bull Run River below dam would be investigated, slightly improving anadromous fish production. * Enhancement of beaver habitat could benefit salmon populations on tributaries. * Anadromous fish habitat restoration on tributaries and main stem would improve wild stock production; elimination of hatchery releases would reduce the quality of sport fishery and harvest levels.	* Boundaries would have less acreage in Trout and Gordon Creeks and offer less protection to tributary riparian and fish habitats than Alt. C. * Fewer landowners would be within BLM boundaries. BLM would not be able to work cooperatively with as many owners. * Increased agency/ranger patrols would help enforce fishing regulations and benefit fish populations. * Increased public education efforts would result in indirect benefits to fish. * Successful water rights application and increased monitoring would help ensure adequate summer and fall flows for migration, spawning and rearing. * Stream bed, bank work and watershed enhancement projects would benefit habitat. * An IFIM study would result in an improved data base of fish habitat needs and water requirements. * Recommendations will be made to ODFW and would help enhance wild stocks and minimize competition between native and hatchery stocks. Sport fishing levels would be reduced somewhat.

SANDY WILD AND SCENIC RIVER SUMMARY OF EFFECTS

	ALTERNATIVE A	ALTERNATIVE B	ALTERNATIVE C	ALTERNATIVE D
RECREATION Management Emphasis, Use Levels and Monitoring	* Continued lack of adequate management in some areas and parks would result in uncontrolled use and increase physical impacts, trespass and vandalism. * Lack of agency coordination, presence and monitoring may result in moderate degradation of recreational experience due to crowding and lack of visitor information, safety and interpretation.	* Recreation use levels would increase slightly due to limited improvements in access and facilities. * More intensive management, monitoring law enforcement and educational efforts should offset any increased recreational use. * Greater impacts would occur to accessible riparian areas due to emphasis on sport fishery under this alternative. * Boating use would increase at a faster rate than in Alt. A.	* Recreation use levels would increase at a slower rate than current use levels due to possible site closures or restrictions. * No additional patrols would occur, slightly increasing poaching, dumping, trespassing and littering. * Sport fishery would be reduced due to greater protection and enhancement of native fish and reduced harvest of some species.	* Recreation use levels would increase at levels similar to Alt. A but would be directed to appropriate areas. * Impacts to private lands and trespassing would be reduced since recreationists would be directed toward public access sites. * Impacts to scenery would be reduced due to purchases of willing seller easements and lands. * Agency patrols would reduce trespassing, littering, vandalism and poaching. * Public education efforts would enhance recreation experience and improve visitor safety.
RECREATION Public Facilities, Access and Trails	* No new access points or trails would be developed in this alternative resulting in no increase or enhancement of recreation opportunities. * Increased recreation use will result in increased incidents of trespass and litter on private lands and competition/conflict among recreationists. * Lack of management would allow continued incidents of trespass, litter, vandalism, illegal fishing, erosion, damage to vegetation and undesired wildfire.	* Greater public access would reduce incidents of trespass and dumping, improve fishing access and opportunities for the physically challenged. * Providing toilets would improve water quality and reduce sanitation problems. * Potential degradation due to greater demand for dispersed campsites would be offset by more intensive public education, patrols and law enforcement. * More intensive management of Dodge Park would enhance the recreation experience.	* No additional facilities or trails would be provided. However, toilet facilities would be placed at trailheads and other heavily used areas where water quality is a problem. * Some sites and multiple trails would be identified or hardened or closed to reduce further resource damaged.	* Where excessive resource damage has occurred, dispersed sites will be closed and rehabilitated. * Greater levels of public education, patrol and enforcement would offset adverse impacts due to increased recreational use. * More intensive management of Dodge Park would enhance the recreation experience.

SANDY WILD AND SCENIC RIVER SUMMARY OF EFFECTS

	ALTERNATIVE A	ALTERNATIVE B	ALTERNATIVE C	ALTERNATIVE D
RECREATION Interpretive Services, Signing and Public Information	* Some information available through county and State Parks and TNC. However, lack of coordinated interpretation efforts would reduce potential quality of recreation experience.	* Interpretive and visitor education efforts would inform the public about the river and its values to better protect the resource and enhance the recreation experience. * Recreation use could be expected to increase due to a very proactive area information program.	* Minimal information and education efforts and information about alternative recreational opportunities would reduce public use along the river and would not add directly to the quality of the recreation experience.	* Future recreational use levels and impacts along the river should be less than described in Alt. B since a greater emphasis would be placed on directing the public to alternate areas and information would be limited in distribution or location. * Interpretive and visitor education efforts would inform the public about the river and its values to better protect the resource and enhance the recreation experience. Information efforts would help protect resource and enhance recreation experience.
HYDROLOGY	* This alternative may decrease water quality over time due to increases in population, increases in point and non-point pollution, unregulated recreation use and consumptive withdrawals in the watershed.	* Water quality would remain static or improve slightly because improved facilities, trail systems and campsites and increased patrols and monitoring would offset degradation due to problems associated with increased use. * Monitoring would provide high quality baseline data for water management in basin.	* Water quality would improve due to a stronger focus on watershed enhancement such as limited recreation and access, trail reconstruction, some campsite closures, improved sanitation and expansion of river boundaries. * Status as outstanding waters of state would help maintain high water quality. * Monitoring would provide high quality baseline data for water management in basin.	* Water quality may increase due to improvements such as more sanitation facilities, realigned trails, some closure of campsites, installation of signage and restoration to riparian areas. * Monitoring would provide high quality baseline data for water management in basin.
WILDLIFE	* Little or no impact to federally protected species would occur. * Removal of snag trees as public hazards may eliminate potential nest sites for Pileated Woodpecker and Pygmy Owl.	* Some additional habitat loss and increased wildlife disturbance would occur due to recreation development. * Bald Eagles may be discouraged from entering the Gorge for feeding if perching areas become scarce due to increases in human population or activity.	* Same as Alt. A, except: * Additional habitat enhancement would occur and boost wildlife populations within the Gorge. * Enhanced wildlife protection on private lands would occur. * Elk populations would be stabilized and monitored. * Monitoring would provide important baseline data on many species and areas. * The peregrine falcon would be re-introduced.	* Same as Alt. C, except: * Slightly less emphasis on easement acquisition and mitigation technical assistance on private lands would occur. * Monitoring and studies not as extensive.

SANDY WILD AND SCENIC RIVER SUMMARY OF EFFECTS

	ALTERNATIVE A	ALTERNATIVE B	ALTERNATIVE C	ALTERNATIVE D
VEGETATION	* Diversity would be reduced on private lands due to lack of efforts to work with private landowners. * Riparian areas would not receive necessary monitoring. * Loss or change of vegetation in corridor would not be monitored.	* More intensive monitoring and management of vegetation may offset increased recreation use. However, increased recreation use could harm sensitive and rare plant species and wetland habitat. * Monitoring and inventory agreements would be made with private landowners to protect habitat on private lands.	* The greatest level of protection would occur to plant communities enhancing/maintaining diversity and reducing fragmentation. * Some recreation activities would occur but damage to plant life would be minimal because recreation activities would be centered around currently used sites. * Willing seller easements or purchase would ensure conservation on private lands.	Same as Alt. B, except: * Recreational development would be planned to minimize impacts to the natural environment. * Enhancement opportunities on private lands would be pursued.
VISUAL RESOURCES	* Visual quality will not change dramatically. However, continued residential development and vegetation removal would eventually change the natural character of the corridor to a more developed and less naturally appearing landscape.	* Visual quality of the river would be significantly improved due to increased funding in scenic easement acquisition, patrols and clean-up efforts, thereby maintaining the natural appearance and character of the river landscape.	* Visual quality would improve. In addition to Alt. B, the likelihood of funding for wildlife habitat acquisition would indirectly protect the viewshed.	* As in Alt. B., visual quality would be improved but the level of protection and enhancement would be reduced for background views due to limited easement acquisition. A landowner stewardship committee would be established to assist agencies in managing the corridor.
CULTURAL RESOURCES	* Easement acquisition would not be an option for cultural resources. * Knowledge of cultural resources would be limited and site protection would not occur. * No inventories would reduce protection of sites.	* Cultural resource inventory would be undertaken for the purpose of recreation facility planning, thereby increasing knowledge and protection at those locations. * Interpretation would focus on sites with the potential of reaching a large number of people, building cultural resource awareness. * Due to increased recreation use, data and material loss from sites would occur.	* Completion of a comprehensive inventory of both public and private lands would occur, increasing knowledge and protection at those locations. * Easement acquisition would be emphasized to protect threatened or deteriorating cultural resource sites enhancing cultural site protection. * On-site interpretation would not occur and off-site interpretation would focus on site protection, building cultural resource awareness.	Same as Alt. C, except: * A detailed field inventory for cultural resources would be completed. * Willing seller easements would be acquired for highly significant sites. * Interpretation would occur at existing recreation sites. * Some compaction, casual collection and erosion would occur with increased visitor use.

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Swimming at Dodge Park in the 1920's.

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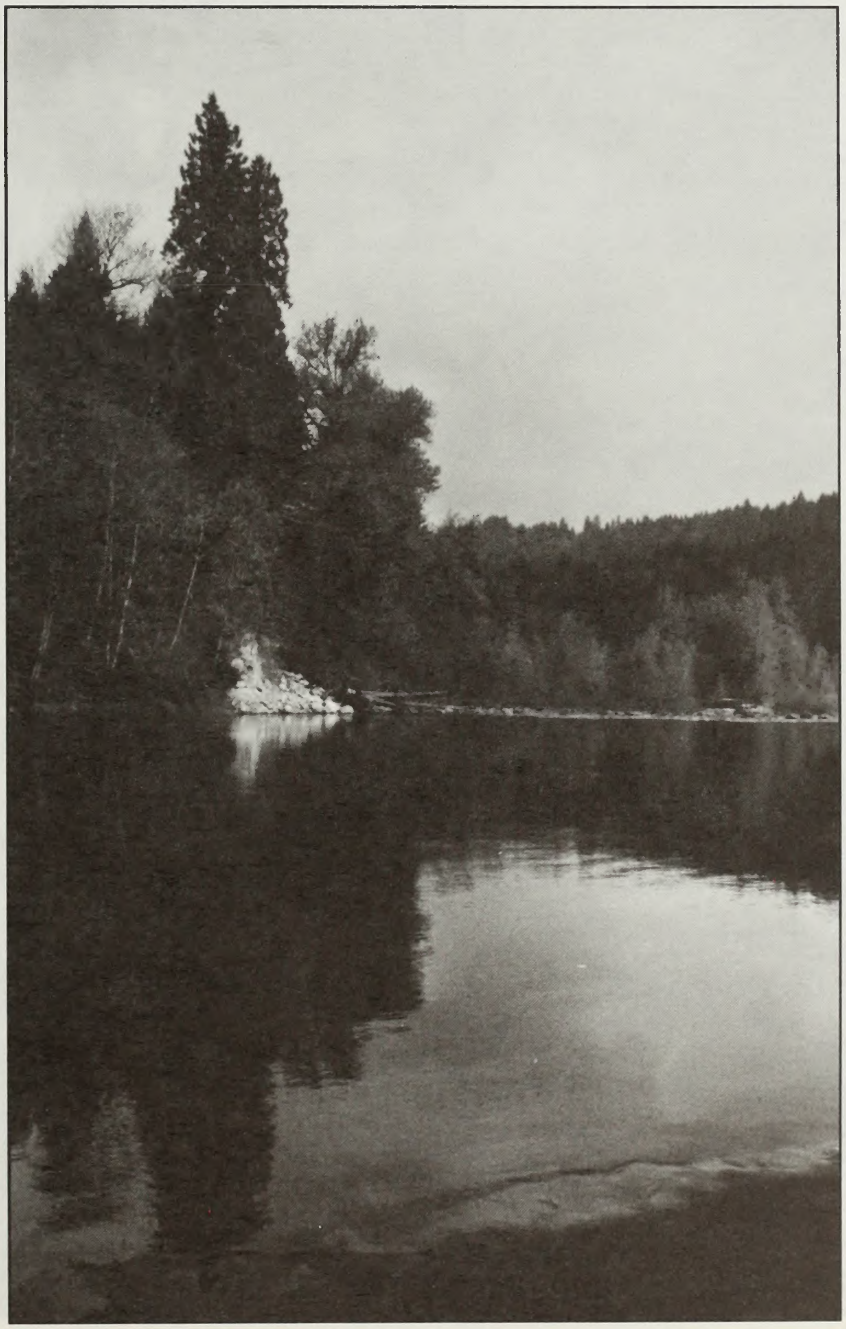
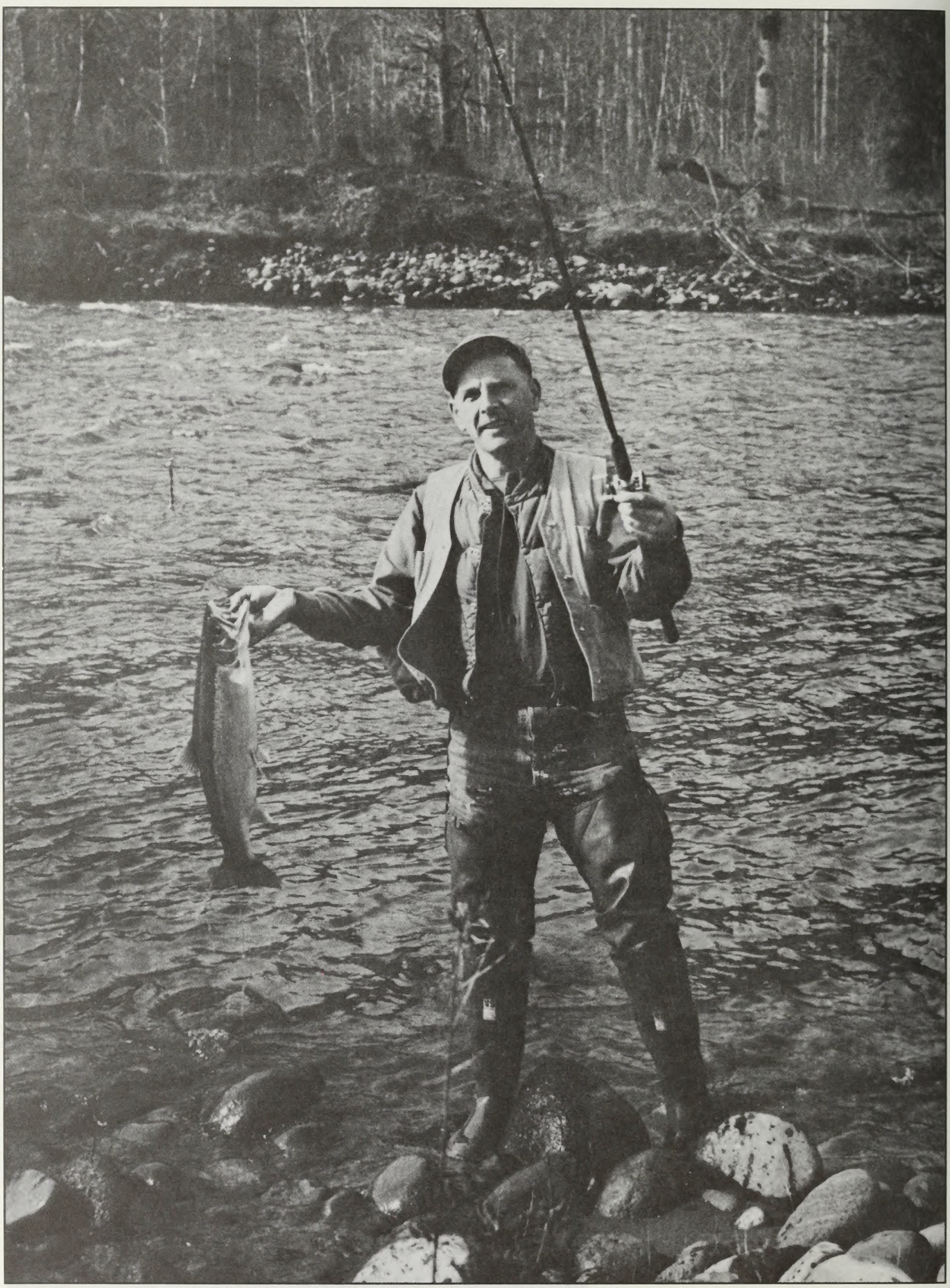




Glossary

Administrative rules - Regulations established by a government agency under the authority of legislative actions.

Allocation - The assignment of recreational use or access to users through management methods after it is determined that demand for the resource exceeds acceptable limits or established standards.

Adverse effect - A reasonable likelihood of more than moderate adverse effects on the scenic, cultural, recreational, or natural resources of a scenic area. The adverse effects are determined by (1) the circumstances of a proposed action, (2) the intensity of the proposed action, including the magnitude and duration of an impact and the likelihood of it occurring; (3) the relationship between a proposed action and another similar action, which together are insignificant, but when considered cumulatively are significant impacts; and (4) proven mitigation measures which the supporter of an action will implement as part of the proposal to reduce significant effects to an insignificant level.

Adjudication - To hear and settle a case by judicial procedure.

Anadromous Fish - Fish that migrate as adults from the ocean into fresh water streams to reproduce young fish which, in turn, migrate to the ocean to maturity. (Example: Salmon)

Anaerobic - A condition in which oxygen is absent from the environment.

Best management practices - Conservation techniques that (1) reduce soil loss and degradation of water quality caused by animal waste, toxins, and sediment; (2) minimize adverse affects to surface water, ground water, and circulation patterns; (3) maintain chemical, biological, and physical characteristics of wetlands, ponds, streams, and riparian areas.

Bio-diversity - A diverse community of biological organisms at the genetic, species, ecosystems, and landscape levels.

Biological evaluation - A specific process required as part of an environmental assessment that evaluates the potential effects of a proposed project on proposed, endangered, threatened, and sensitive species and their habitats; done for both animals and plants.

Buffer zone - An area next to a sensitive body of water established and managed to protect the system from human disturbance. The zone may include all or a portion of the riparian area.

Bureau of Land Management - The organizational unit of the United States Department of the Interior that administers the Nation's public lands, about 272 million acres or one-eighth of the Nation. The BLM also has the responsibility for management of mineral estate underlying 572 acres, 300 million acres of which are administered or owned by other agencies or private interests.

Bureau of Land Management (BLM) lands - Any land and interest in land managed by the United States Government, administered by the Department of the Interior through the Bureau of Land Management.

Campsite hardening - Measures, such as paving a footpath, to reduce adverse impacts from camping.

Catch-and-Release - A popular trend promoted by management agencies, constituency organizations and sportsmen clubs which encourages anglers to return caught fish to the water rather than keeping them. This helps to maintain fisheries.

Clearcut - An opening created by the clearing vegetation of an area one acre or more in size.

Commercial forest products - Products such as timber for lumber, pulp, and firewood for commercial purposes.

Council on Environmental Quality (CEQ) - The advisory council to the President, established by the National Environmental Policy Act of 1969. The council reviews federal programs for their effect on the environment, conducts environmental studies, and advises the President on environmental matters.

Cryptogam survey - An inventory of mosses, lichens, and liverworts.

Cultural resource - A term generally meaning any cultural property and any traditional way-of-life value that includes historical, archeological and architectural sites, structures, places, objects, and works of art. They may consist of (1) physical remains; (2) definable areas of occurrence of significant human events where no remains exist; (3) the environment immediately surrounding the property area; or (4) abstract, non-material values important to the maintenance of a specified social and cultural traditional system of belief, practice, or interaction not closely identified with an established location.

Cumulative effects - The combined effects of two or more management activities. The effects may be related to the number of individual activities, or to the number of repeated activities on the same piece of ground. The effects can result from individually minor but collectively significant action taking place over a period of time.

Dedicated site - An area dedicated to the current use and specified on the site plan map.

Degraded site - Any area in which the environment is in an early seral status or is in a declining ecological condition.

Development - Any land division, structure, including but not limited to, new construction of buildings and structures, mining, dredging, filling, grading, paving, and excavating.

Diversity - A measure of the variety of species and habitats in an area that takes into account the relative abundance of each species or habitat.

Early seral - The ecological status that corresponds to 0 to 25 percent of the plant composition found in the potential natural community. Same as poor range conditions.

Easement - A right held by a person or entity to make use of the land of another for a limited purpose.

Ecosystem - An interacting system of organisms considered together with their environment. (Example: a marsh)

Eco-niche - The particular habitat that is needed by a certain plant or animal.

Ecotone - A transition area of vegetation between two communities that possesses characteristics of both types of neighboring vegetation as well as characteristics of its own.

Endangered species - Any species defined through the Endangered Species Act as being in danger of extinction throughout all or a significant portion of its range and published in the Federal Register.

Endemic - plants or animals found only in a particular area.

Enhancement - In relation to natural resources, the term means efforts would be undertaken to restore habitat to pre-impact conditions where possible and feasible. In relation to recreation, the term means that the site or facility would be improved or upgraded or expanded to improve quality of the recreational experience.

Environmental assessment - A concise public document which provides sufficient evidence and analysis for determining whether to prepare an Environmental Impact Statement or a Finding of No Significant Impact

Environmental Impact Statement - A document prepared by a federal agency which evaluates significant environmental impacts anticipated from implementation of federal actions. An Environmental Impact Statement is filed with the Environmental Protection Agency.

Erosion - Separation and movement of soil and rock by water, wind, ice, and gravity.

Existing use - A legally-established use which existed before the effective date of the Act, the management plan, or a land use ordinance established under the act.

Fire suppression areas - An area identified in need of fire suppression requirements to prevent loss of life, property, and resources.

Ground cover - Vegetation that keeps the soil from eroding away.

Habitat - The type of environment in which certain plant and animals live.

Herbs - Nonwoody (herbaceous) plants, including grasses and grasslike plants, forbs, ferns, fern allies, and nonwoody vines.

Historic site - Any cultural property dating to the historic period of a particular region. The historic period is the period of time in any region for which historic records exists. In western Oregon, the historic period generally begins in the late 18th century and continues through the very early 19th century.

Impact - A change in the environment which is caused by humans.

Indigenous - Naturally born, produced, or grown in an area; native.

Instream flow - Water that remain in stream beds and is not extracted for uses outside of the bed. Minimum in-stream flows can be mandated to provide consistent fishery habitats.

Instream water right - A right to the use of water which remains in the stream, such as fish, recreation, or pollution abatement.

Interpretation - Education and information programs through which public use specialists explain natural resource issues and concepts to the general public.

Late seral - The status of the ecology that corresponds to 51 to 75% of the of the plant composition found in the potential natural community. Synonymous with good range condition.

Limits of acceptable change (LAC) process - A river management planning process that requires managers to define desired river conditions and to undertake actions to maintain or achieve these conditions.

Management objectives - Parameters or goals used as standards to measure the success of the management plan.

Management indicator species - A species identified in a planning process that is used to monitor the effects of planned management activities on habitat of wildlife and fish, including those that are socially or economically important.

Memorandum of Understanding (MOU) - An agreement between two or more parties.

Mesic - Having a moderate rainfall.

Mid-seral - The status of the ecology that corresponds to 26 to 50% of the of the plant composition found in the potential natural community. Synonymous with fair range condition.

Mitigating measures - Modification of actions which (1) avoid impacts by not taking a certain action or parts of an action; (2) minimize impacts by limiting the degree or magnitude of the action and its implementation; (3) rectify impacts by repairing, rehabilitating, or restoring the affected environment; (4) reduce or eliminate impacts over time by preservation and maintenance operations during the life of the action; (5) compensate for impacts by replacing or providing substitute resources or environments.

Monitoring - The orderly collection of data evaluating the effects of both management actions and the existing natural conditions.

Motorized equipment - Any machine activated by a nonliving power source except small battery-powered, handcarried devices such as flashlights, shavers, Geiger counters and cameras.

Motor vehicle - Any vehicle which is self-propelled or any vehicle which is propelled by electric power obtained from batteries.

Multiple use - The harmonious use of land and water resources for more than one purpose.

National Environmental Policy Act - An Act passed in 1969 (has since been amended) to establish a national policy for the environment, the Council on Environmental Quality, and other purposes.

National Register of Historic Places (NRHP) - A listing, established by the Historic Preservation Act of 1966, of the nation's significant cultural resources.

National Wild and Scenic Rivers System - A system of Congressionally designated rivers and their immediate environments that have outstanding scenic, recreational, geological, fish and wildlife, historical, cultural, and other values and are preserved in a free-flowing condition. The system consists of three types:

- Recreation

  Rivers or sections of rivers readily accessible by road or railroad that may have some development along their shorelines and that may have undergone some impoundment or diversion in the past.

- Scenic

  Rivers or sections of rivers free of impoundments, with shorelines or watersheds still largely undeveloped but accessible in places by roads.

- Wild

  Rivers or sections of rivers free of impoundments and generally inaccessible except by trails, with essentially primitive watersheds or shorelines, and unpolluted waters.

Native species - Plants or animals indigenous to an area.

Non-point source pollution - Pollution caused by the introduction of scattered sources (e.g. sediment and nutriments) or from a natural or human alteration in the stream system.

Noxious weed - A plant specified by law as being especially undesirable, troublesome, and difficult to control.

Off-highway vehicle (OHV) - A motorized vehicle capable of travel over natural terrain, including water. Non-amphibious registered motorboats, emergency vehicles, and other official vehicles are not included.

Old growth - Any stand of trees ten acres or greater generally containing the following characteristics: (1) trees in the overstory well into the mature growth state, (2) a multi-layered canopy with trees of several age classes, (3) the presence of standing dead trees and down material, (4) the presence of human activity may which would be considered insignificant in relation to the other characteristics.

Oregon Natural Heritage Plan - A system based on a cooperative effort between The Nature Conservancy and the Oregon Division of State Lands and other public agencies which maintains a comprehensive manual and computerized data base on Oregon's rare, threatened and endangered plant, animals and ecosystems.

Outstandingly remarkable values - Values among those listed in Section 1(b) of the Wild and Scenic Act: "scenic, recreational, geological, fish and wildlife, historical, cultural, or other similar values." Other similar values may include ecological, biological, botanical, paleontological, hydrological, scientific, or research.

Oxbow - A bend in a river that resembles the U-shaped frame forming a collar about an ox's neck and supporting the yoke.

Paleontological resource - Remnants of life from past geological ages as seen in plant and animal fossils.

Point source pollution - A stationary pollution source, such as a smoke stack or discharge pipe.

Population or stock - A subunit of a larger group. For example, while the stock of Chinook salmon in the Sandy River may be healthy, a subgroup or population within that stock might be in trouble because it lives in a place that has added risks.

Primitive and Unconfined Recreation - Nonmotorized and nondeveloped types of outdoor recreational activities.

Public Utilities Commission - The state agency that regulates investor-owned electric and natural gas utilities, water companies, telephone companies, and transportation industries.

Resource Assessment - A comparative analysis of resource values used to determine the relative importance of those values. For the lower Sandy River, the resource assessment was used to evaluate the river's values in order to determine which values are considered outstandingly remarkable values.

Return flows - Excess irrigation water that returns to the stream.

Right-of-way - A permit or easement that authorizes a specific function of a specific area of land.

Riparian - An area of land directly influenced by the water of a stream, river, pond, lake or wetland in which water, soil, and vegetation interact to form a unique microclimate.

Riparian buffer - An area of land along the perimeter of the riparian area used to prevent unwanted development or other intrusion into areas beyond the buffer.

Riparian management area - An area designated in a plan to protect the riparian or stream-side zone or both.

Roaded natural - An area with a predominate natural- appearing environment with moderate evidences of the sights and sounds of humans which usually harmonize with the natural environment.

Scoping - The process of identifying significant issues of a proposal through public comment. The process develops issues, and alternatives for consideration.

Sediment - Soil, rock particles, organic matter and other debris that has been carried from one place to another by gravity, water, or wind.

Self-sustaining fish populations - Fish populations that have sufficient capabilities to maintain the population through natural reproduction.

Sensitive species - Any species within the jurisdiction of, and regulated by, the policies of the Bureau of Land Management.

Seral - Pertaining to a succession of plant communities in a given habitat leading to a particular climax association; a stage in a community succession.

Species of special concern - Plant species considered rare in Oregon but may be common in other states or justification for inclusion the Sensitive Plant Species list is insufficient, or both.

State Scenic Waterway - A river, or river segment, that has been designated by the Oregon Legislature, by Governor's Declaration, or by voter referendum as a Scenic Waterway under the provisions of the Oregon Scenic Waterways Act of 1969.

Stock - See **Population or stock**.

Succession - The process of a vegetative community towards climax or potential natural community.

Sustained yield - The annual production of timber on a consistent basis at a level of production to meet the needs of humans and the environment.

Threatened species - Any species defined through the Endangered Species Act as likely to become endangered within the foreseeable future throughout all or a significant portion of its range and published in the Federal Register.

Turbidity - A measure of the clarity of water.

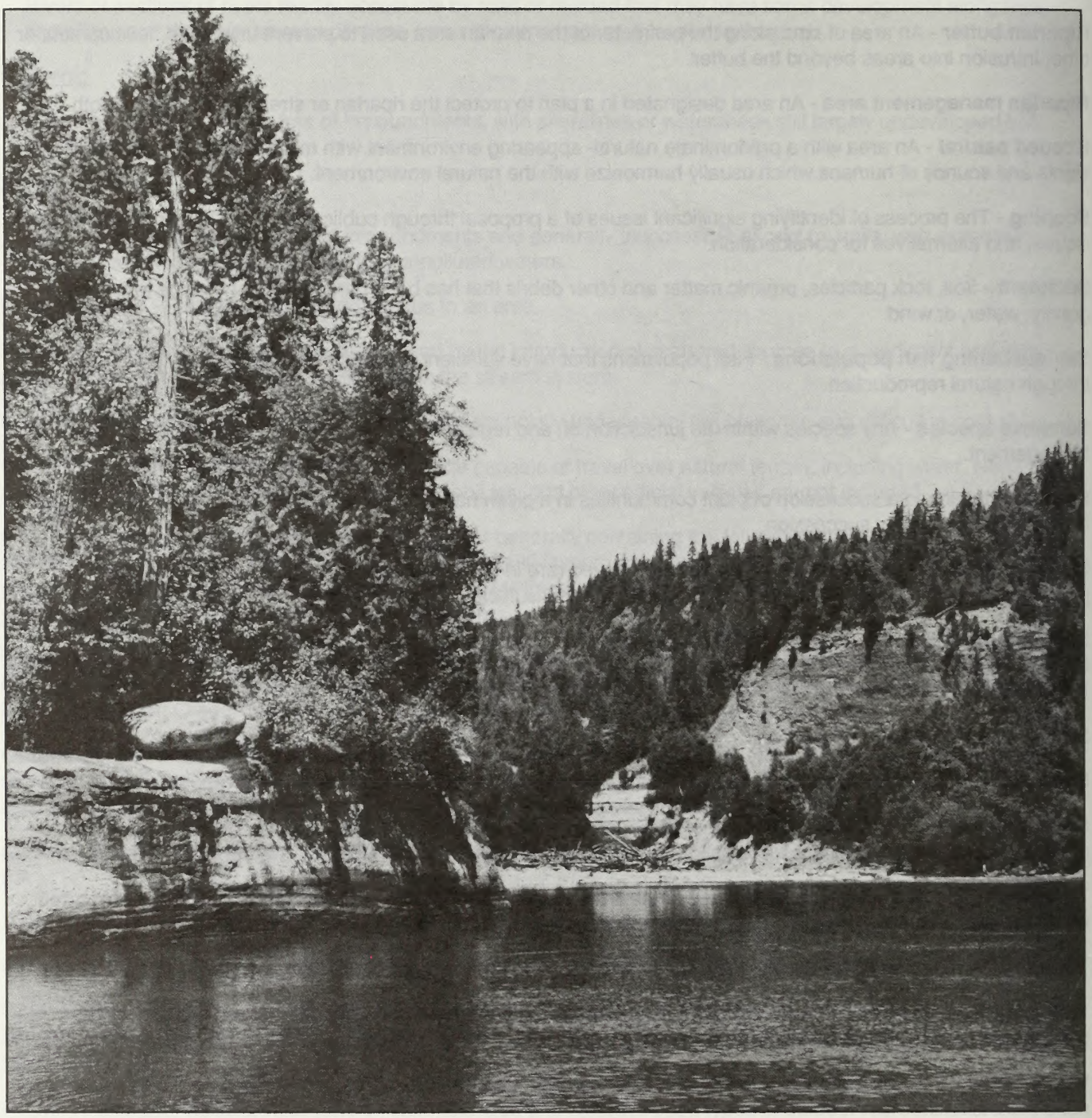
Visitor Use - Visitor use of the wilderness resource for inspiration, stimulation, solitude, relaxation, education, pleasure or satisfaction.

Watch-listed - Species the Salem District BLM has identified for further research in order to determine whether or not a plant is rare.

Water quality - The chemical, physical, and biological characteristics of water with respect to suitability for a particular purpose.

Wetlands - Commonly soft, wet tracts of land covered at times by water.

Wild and Scenic River - A river or section of a river designated by Congress under the Wild and Scenic Rivers Act of 1968, as amended.



Appendix A Oregon State Scenic Waterway Administrative Rules

Oregon Administrative Rules
Chapter 736. Division 40 — State Parks and Recreation Division

Classification of Scenic Waterways and Segments Thereof

736-40-040 (1) OAR 736-40-040 through 736-40-075 supplement, but in no way alter, other provisions of these rules and regulations. Notification procedures set forth in OAR 736-40-030, 736-40-035 and 736-40-080, relating to Land Management, are applicable to these rules. In order to establish varying intensities or protection or development based on special attributes of each area within the scenic waterways, the following classifications are established:

(a) Natural River Areas:

(A) Those designated scenic waterways or segments thereof that are generally inaccessible except by trail or the river, with related adjacent lands and shorelines essentially primitive. These represent vestiges of primitive America;

(B) Natural River Areas may include an occasional lightly traveled road, airstrip, habitation or other kind of lightly traveled road, airstrip, habitation or other kind of improvement already established, provided the effects are limited to the immediate vicinity;

(C) Natural River Areas will be administered to preserve their natural, wild and primitive condition, essentially unaltered by the effects of man, while allowing compatible recreational uses, other compatible existing uses and protection of fish and wildlife habitat.

(b) Scenic River Areas:

(A) Those designated scenic waterways or segments thereof with related adjacent lands and shorelines still largely primitive and largely undeveloped, except for agriculture and grazing, but accessible in places by roads. Scenic River Areas may not include long stretches of conspicuous or well-traveled road paralleling the river in close proximity, but may include extensive areas in agricultural use;

(B) Scenic Areas will be administered to maintain or enhance their high scenic quality, recreational value, fishery and wildlife habitat, while preserving their largely undeveloped character and allowing continuing agricultural uses.

(c) Recreational River Areas:

(A) Those designated scenic waterways or segments thereof that are readily accessible by road or railroad, that may have some development along their shorelines and related adjacent lands, and that may have undergone some impoundment or diversion in the past;

(B) Recreational River Areas will be administered to allow continuance of compatible existing uses, while allowing a wide range of compatible river-oriented public outdoor recreation opportunities, to the extent that these do not impair substantially the natural beauty of the scenic waterway or diminish its esthetic, fish and wildlife, scientific and recreational values.

(d) Natural Scenic View Areas:

(A) Those designated shorelines and related adjacent lands, lying along only on bank of a river within a scenic waterway, which possess the qualities of a Natural or Scenic River Area except that the opposite shoreline and related adjacent land, by reason of accessibility, or development, qualifies only for a less restrictive classification;

(B) Natural Scenic View Areas will be administered to preserve or enhance their essentially primitive scenic character, while allowing compatible public outdoor recreational use.

(e) Accessible Natural River Areas:

(A) Those designated scenic waterways or segments thereof that are readily accessible by road or railroad but otherwise possess the qualities of a Natural or Scenic River Area;

(B) Accessible Natural River Areas will be administered to protect or enhance their essentially primitive scenic character, while allowing compatible public outdoor recreation use.

(f) River Community Areas — Those designated areas of a scenic waterway, perhaps on only one bank of the river, where density of structures or other developments, already existing or provided for precludes application of a more restrictive classification.

(2)(a) Within the general framework of these classifications, the Commission will further consider the nature and extent of existing land uses and developments, the scenic qualities and the esthetic, fish and wildlife, scientific and recreational values of each classified area within the scenic waterways in determining whether, in its judgement, proposals for changes of land use or improvements are compatible with the Act;

(b) Because of the individual character of each scenic waterway, administrative criteria within each of the six classifications may vary from one scenic waterway to another.

Sandy River Scenic Waterway

736-40-075 (1) Natural River Area: The segment of the scenic waterway extending from the east boundary line of Section 25 and Section 36, Township 1south, Range 4 East, or Willamette Meridian, in Clackamas County at Dodge Park, downstream approximately 3.8 miles to the South line of the North Half of the Northeast Quarter of Section 23, Township 1South, Range 4 East, of Willamette Meridian, in Multnomah County near Indian John Island, is classified as a Natural River Area.

(2) Scenic River Area: The segment of the scenic waterway extending from the South line of the Township 1 South, Range 4 East, of the Willamette Meridian, in Multnomah County near Indian john Island, downstream approximately 8.7 miles to the West line of the East Half of the Northeast Quarter of Section 6, Township 1South, Range 4, East, of the Willamette Meridian, in Multnomah County at Dabney State Park, is classified as a Scenic River Area.

(3) In both the Natural River Area and the Scenic River Area of the Sandy River Scenic Waterway:

(a)(A) Within the area of greatest visual effect on the natural river scene, as indicated on the map of the Sandy River Scenic Waterway prepared by the State Parks and Recreation Division and dated 13 September 1972, new structures or other improvements which are visible from the river (see OAR 736-40-015(10), Definition of Terms), other than those erected or made in connection with compatible existing uses, or those needed for public outdoor recreation or resource protection will not be permitted unless they are so located that their visual effect is primarily on the upland scene (above the rims of the canyon, or "bluff line," usually readily discernible) rather than on the scene as viewed from the river;

(B) Outside that area of greatest visual effect on the natural river scene, uses which are consistent with applicable county zoning ordinances and OAR 736-40-030 and 736-40-035 may be permitted. Within the Natural River Area, such permitted uses shall be largely concealed from view from the river by topography or established evergreen vegetation which shall be maintained; within the Scenic River Area such permitted uses may be visible from the river, provided they are consistent with applicable county zoning regulations and OAR 736-40-030 and 736-40-035.

(b) Outside the area of greatest visual effect on the natural river scene, as indicated on the map of the Sandy River Scenic Waterway prepared by the State Parks and Recreation Division and dated 13 September 1972, notification is not required for changes of land use, construction of buildings or other improvements or other alterations or activities which:

(A) Are less than 21 feet in height above natural grade on a side facing the river; and

(B) Are entirely concealed from view from the river by topography or established evergreen vegetation which shall be maintained; and

(C) Do not involve reduction of existing vegetation which is visible from the river; and

(D) Are finished in muted tones without large reflective surfaces; and

(E) Meet applicable requirements of other governmental agencies, including county zoning regulations.

FOREST PRACTICES COORDINATION WITH THE WILLAMETTE GREENWAY AND OREGON SCENIC WATERWAYS PROGRAMS

AUTHORITY.

A. Forest Practices Act.

ORS 527.630 declares it to be in the public interest to vest authority in the Board to develop and enforce regional rules, for two purposes:

1. To assure the continuous growing and harvesting of forest tree species and to protect the soil, air and water resources including but not limited to streams, lakes and estuaries; and

2. To achieve coordination among state agencies which are concerned with the forest environment.

B. Scenic Waterways Program.

ORS 390.805 to 390.925 establishes a Scenic Waterways Program. The statutes declare that the highest and best use of these scenic waterways are recreational, fish and wildlife uses. The free-flowing characters of these waters shall be maintained in quantities necessary for recreation, fish and wildlife uses. forest crops shall be harvested in such a manner as to maintain as nearly as reasonably is practicable the natural beauty of the scenic waterway. No person may put related adjacent lands to uses that violate the Scenic Waterways Program unless the owner of the land has given to the Department of Transportation written notice of proposed uses at least one year prior thereto. The program is administered by the Oregon Department of Transportation through its State Parks and Recreation Division, Rivers Program Section.

C. Willamette River Greenway.

Statewide planning Goal 15 (Willamette River Greenway) is to protect, conserve, enhance and maintain the natural scenic historical, agricultural, economic and recreational qualities of lands along the Willamette River as the Willamette River Greenway. Partial harvest of timber shall be permitted beyond the vegetative fringes in areas not covered by a scenic easement when the harvest is consistent with an approved plan under the Forest Practices Act, or, if not covered by the Forest Practices Act, then with an approved plan under the Greenway Compatibility Review provisions. Such plan shall ensure that the natural scenic qualities of the Greenway will be maintained to the greatest extent practicable or restored within a brief period of time.

The Willamette River Greenway Program was established by the legislature in 1967 and later revised in 1973 under ORS 390.310 - 390.368. The Oregon Department of Transportation through its State Parks and Recreation Division, Rivers Program Section administers the program. It is a joint effort program carried out with the assistance of units of local government and the Department of Land Conservation and Development. State Parks serves as the lead coordinating agency.

OBJECTIVE.

The purpose of this directive is to outline Department responsibilities and procedures for coordinating the Forest Practices Program administration with the Willamette River Greenway and the Oregon Scenic Waterways programs.

STANDARDS.

A. Knowledge of Willamette River Greenway and Oregon Scenic Waterways Programs.

Forest Practices Program personnel shall be knowledgeable about the Willamette River Greenway and Oregon Scenic Waterways programs as they relate to Forest Practices.

B. Willamette River Greenway and Oregon Scenic Waterways Programs Boundaries.

Districts shall maintain maps showing the current Willamette River Greenway and Oregon Scenic Waterways boundaries that lie within their respective District boundaries.

C. Coordination.

Appropriate counties and the Department of Transportation will be informed of notifications received for operations within the boundaries of the Willamette River Greenway and the Oregon Scenic Waterways, respectively.

D. Landowners.

Landowners giving notification under the Forest Practices Act will be given basic information about the Oregon Scenic Waterways and Willamette River Greenway programs, when appropriate.

PROCEDURES.

A. Districts will maintain a current map showing the boundaries of the Willamette River Greenway and Oregon Scenic Waterways and affected lands.

B. When an operator, timberowner, or landowner gives a notice to the State Forester of intent to perform a commercial operation on forest land within the Willamette River Greenway or Oregon Scenic Waterways boundary, the Department will inform the operator, the landowner or the timberowner that special constraints may apply. The Department of Transportation has a handout that can be given to the operator, timberowner, or landowner affected outlining his responsibilities under the Oregon Scenic Waterways Program.

C. Telephone the manager of the River Programs, Department of Transportation, Parks and Recreation Division, Salem (378-6500) when notice of an operation within a Scenic River Program area ia received. Telephone the respective county planning director when the notice of an operation within the Willamette River Greenway is received.

D. Telephone the manager of the River Programs, Department of Transportation, Parks and Recreation Division (378-6500) when known Scenic Waterways Program violations occur. Telephone the respective county planning director of known Willamette River Greenway violations.

E. Treat operations within the Willamette River Greenway and Oregon Scenic Waterways as high priority operations.

RESPONSIBILITY.

A. Area Directors. District Foresters.

Responsible for effective administration of Department responsibilities relative to the Willamette River Greenway and Oregon Scenic Waterways programs within their respective Area/District(s).

B. Forest Practices Foresters.

Responsible for:

1. Maintaining a map showing the current boundaries of the Willamette River Greenway and scenic waterways covered by "Goal 15" and the Oregon Scenic Waterways Program, respectively.
2. Providing the landowner, timberowner or operator with basic information about the Willamette River Greenway and Oregon Scenic Waterways programs at the time the landowner/operator/timberowner gives Forest Practices notification to the State Forester.
3. Telephoning the Manager of the Rivers Program, Department of Transportation, Parks and Recreation Division when the Department received notification of intent to operate in areas covered by the Scenic Waterways Program. Telephoning the respective county planning director when the Department receives notification of an operation within the Willamette River Greenway.
4. Reporting known Scenic Waterways Program violations to the Manager of the Rivers Program, Department of Transportation, Parks and Recreation Division. Reporting known violations of the Willamette River Greenway program to the respective county planning director.
5. Being aware of county requirements peculiar to the Willamette River Greenway Program.

B. Forest Practices Section.

Responsible for providing current information to the field regarding the Willamette River Greenway and Scenic Waterways Program.

C. Manager, Rivers Program, DOT

Responsible for:

1. Providing "handouts" to the Forestry Department regarding the Willamette River Greenway and Oregon Scenic Waterways programs.
2. Providing current information to the Forestry Department on the status of the Willamette River Greenway and Oregon Scenic Waterways programs, including boundaries, landowner requirements, etc.
3. Providing training to Forestry Department personnel on the Willamette River Greenway and Oregon Scenic Waterways programs.

Appendix B
County Zoning Regulations

Information booth at Dodge Park in 1925.

Clackamas County Zoning Regulations

704 PRINCIPAL RIVER CONSERVATION AREA (PRCA)

704.01 Purpose

A. To maintain the integrity of the rivers in Clackamas County by minimizing erosion, promoting bank stability, maintaining and enhancing water quality and fish and wildlife habitats, and preserving scenic quality and recreational potentials;

B. To maintain rivers in their natural state to the maximum extent practicable, thereby recognizing their natural, scenic, historic, economic, cultural and recreational qualities; and

C. To implement the Rivers Area Design Plan stated in the Comprehensive Plan.

704.02 AREA OF APPLICATION

A. The standards of Section 704 apply to land within a quarter mile of the mean low water line of the Clackamas, Sandy/Salmon, Molalla/Pudding, and Tualatin River corridors as identified in Maps III-1a, III-1b, III-1c and III-1d of the Clackamas County Comprehensive Plan.

B. The provisions of Section 704 are in addition to those requirements of the State Scenic Waterways Act. In those areas designated State Scenic Waterways, the requirements of the State Scenic Waterways Act shall prevail where they conflict with the provisions of Section 704. (7-15-81)

704.03 STANDARDS FOR DEVELOPMENT

A. All primary structures shall be located at least 100 feet from the mean low water line of the river. This minimum setback may be increased up to 150 feet from the mean low water line, to lessen the impact of development. In determining the minimum setback, the following shall be considered:

1. The size and design of any proposed structures;
2. The width of the river;
3. The topography of the land between the site and the river;
4. The type and stability of the soils;
5. The type and density of existing vegetation between the site and the river;
6. Established recreation areas or areas of public access; and
7. Visual impact of any structures.

B. Residential structures and structures accessory to residential structures which can be seen from the river shall be thirty-five (35) feet or less in height, and shall be muted earth tones.

C. Subsurface sewage disposal drainfields are prohibited within 100 feet of the mean low water line.

D. Commercial or industrial structures, parking and storage areas and signs shall be screened from view of the river by an appropriate vegetation buffer and shall meet the siting requirements of subsection 704.03A.

E. Residential minor land partitions shall be designed, where possible, to allow compliance with the provisions of Section 704.

704.04 EXCEPTIONS TO THE STANDARDS OF SUBSECTION 704.03

A. Residential lots of record where lot depth precludes compliance with the setback standards of subsection 704.03A, shall be exempt from these standards. Structures shall be sited the maximum practicable distance from the mean low water line. All other provisions of Section 704 shall apply.

B. Water dependent uses, such as private boat docks, marinas, or boat ramps, shall be exempt from the provisions of subsection 704.03, except that structures shall be muted earth tones. All other provisions of Section 704 shall apply to water-dependent uses, and any structure shall be the minimum size necessary to accommodate the use.

C. Additions to existing structures which are located closer than the setback requirements of subsection 704.03A are permitted, provided that the addition complies with the other provisions of Section 704.

D. Public uses, such as bridges for public roads, shall be allowed within the setbacks stated in

subsection 704.03A, provided that adverse impacts are mitigated.

E. Water impoundments, diversions, detention and retention facilities and hydroelectric facilities shall be exempt from the setback provisions under subsection 704.03A. All such facilities shall comply with all other applicable provisions of the Section and Ordinance, and are subject to review and approval pursuant to applicable State and Federal statutes and administrative rules.

704.04 VEGETATION PRESERVATION REQUIREMENTS

A. A buffer or filter strip of existing vegetation shall be preserved along all river banks. The depth of this buffer strip need not exceed 150 feet, and shall be determined by evaluation of the following:

1. The character and size of the proposed development and its potential for adverse impact on the river;
2. The width of the river;
3. The topography of the area;
4. The type and stability of the soils; and
5. The type and density of the existing vegetation.

B. Tree cutting and grading shall be prohibited within the buffer or filter strip, with the following exceptions:

1. Diseased trees or trees in danger of falling may be removed; and
2. Tree cutting or grading may be permitted in conjunction with those uses listed in subsection 704.04, to the extent necessary to accommodate those uses.

C. Commercial forest activities and harvesting practices shall provide for vegetation buffers and the intended shading, soil stabilizing and water filtering effects as required by the Oregon Forest Practices Act and administered by the State Department of Forestry, but need no otherwise comply with the provisions of subsection 704.05A. Commercial forest harvesting activities in the Northwest Urban Area shall be reviewed pursuant to Forest Policy 6.4 of the Comprehensive Plan. (7-15-81)

704.06 APPLICATION REQUIREMENTS

A. All development and tree-cutting activities controlled by the provisions of Section 704 within a principal river conservation area shall be reviewed by the Planning Division staff to insure consistency with Section 704. For the purpose of this section, development shall include buildings or other structures, mining, dredging, filling, grading, paving, excavation or any other activity which results in the removal of substantial amounts of vegetation or in the alteration of natural site characteristics.

B. Development or tree-cutting activity shall be reviewed pursuant to a building or grading permit submitted to the Planning Division. The permit application shall be accompanied by such materials as are reasonably necessary for adequate review. Examples of such materials include: (7-1-83)

1. A site plan showing existing vegetation and development, and locations of proposed development or tree-cutting activity;
2. Elevations of any proposed structures;
3. Exterior materials list for any proposed structures, including type and colors of siding and roofing; and
4. Cross-section of any area within the vegetative fringe where grading, filling or excavating will occur.

D. The applicant may appeal to the Hearings Officer a decision of the Planning Division staff as provided under subsection 1305.01K. (7-1-83)

MULTNOMAH COUNTY

Significant Environmental Concern SEC

11.15.6400 Purposes

The purposes of the Significant Environmental Concern subdistrict are to protect, conserve, enhance, restore, and maintain significant natural and man-made features which are of public value, including among other things, river corridors, streams, lakes and islands, domestic water supply watersheds, flood water storage areas, natural shorelines and unique vegetation, wetlands, wildlife and fish habitats, significant geological features, tourist attractions, archaeological features and sites, and scenic views and vistas, and to establish criteria, standards, and procedures for the development, change of use, or alteration of such features or of the lands adjacent thereto.

[Amended 1990, Ord. 643 § 2]

11.15.6402 Area Affected

Except as otherwise provided in MCC .6404 or MCC .6406, this subsection shall apply to those lands designated SEC on the Multnomah County Zoning Map.

11.15.6404 Uses – SEC Permit Required

(A) All uses permitted under the provisions of the underlying district are permitted on lands designated SEC; provided, however, that the location and design of any use, or change or alteration of a use, except as provided in MCC .6406, shall be subject to an SEC permit. The excavation of any archaeological site shall require an SEC permit, under MCC .6412, regardless of the zoning designation of the site.

(B) Any excavation or any removal of materials of archaeological, historical, prehistorical or anthropological nature shall be conducted under the conditions of an SEC permit.

(C) Any building, structure, or physical improvement within 100 feet of the normal high water level of a Class I stream, as defined by the State of Oregon Forest Practice Rules, shall require an SEC permit under MCC .6412, regardless of the zoning designation of the site. *[Added 1990, Ord. 643 § 2]*

11.15.6406 Exceptions

An SEC permit shall not be required for the following:

(A) Farm use, as defined in ORS 215.203(2)(a), including buildings and structures accessory thereto on "converted wetlands" as defined by ORS 541.695(9) or on upland areas;

[Amended 1990, Ord. 643 § 2]

(B) Except as provided in MCC .6420(C), the propagation of timber or the cutting of timber for public safety or personal use or the cutting of timber in accordance with the State Forest Practices Act;

[Amended 1990, Ord. 643 § 2]

(C) Customary dredging and channel maintenance and the removal or filling, or both, for the maintenance or reconstruction of structures such as dikes, levees, groins, riprap, drainage ditch, irrigation ditches and tile drain systems as allowed by ORS 196.905(6); *[Amended 1990, Ord. 643 § 2]*

(D) The placing, by a public agency, of signs, markers, aids, etc., to serve the public;

(E) Activities to protect, conserve, enhance, and maintain public recreational, scenic, historical, and natural uses on public lands;

(F) Activities regulated pursuant to the provisions of ORS 390.805 to 390.925 on lands designated as scenic waterways under the Oregon Scenic Waterways System;

(G) The expansion of capacity, or the replacement, of existing communication or energy distribution and transmission systems, except substations;

(H) The maintenance and repair of existing flood control facilities;

(I) Uses legally existing on the effective date of this Chapter; provided, however, that any change or alteration of such use shall require an SEC permit as provided herein; and

(J) Those Class 1 streams located:

(1) Within mineral and aggregate resource areas designated "2A", "3A" or "3C" by a Statewide Planning Goal 5 Economic, Social, Environmental and Energy analysis, or

(2) Within the Willamette River Greenway.

[Added 1990, Ord. 643 § 2]

11.15.6408 Application for SEC Permit

An application for an SEC permit for a use or for the change or alteration of an existing use on land designated SEC, shall address the applicable criteria for approval, under MCC .6420 and shall be filed as follows:

(A) For a Permitted Use or a Use Under Prescribed Conditions, in the manner provided in MCC .8210(B); and

(B) For a Conditional Use as specified either in the underlying district or in MCC .7105 through .7640, or for a Community Service Use as specified in MCC .7005 through .7030, or for a change of zone classification or for any other action as specified in MCC .8205, the SEC permit application shall be combined with the required application for the proposed action and filed in the manner provided in MCC .8210 and .8215.

11.15.6410 SEC Permit – Required Findings

A decision on an application for an SEC permit shall be based upon findings of consistency with the purposes of the SEC district and with the criteria for approval specified in MCC .6420.

11.15.6412 Decision by Planning Director

(A) A decision on an SEC permit application for a Permitted Use or a Use Under Prescribed Conditions shall be made by the Planning Director.

(B) The Director may approve the proposal or approve it with such modifications and conditions as may be consistent with the Comprehensive Plan and necessary to assure compatibility with MCC .6420.

(C) Within ten business days following receipt of a completed application for an SEC permit, the Planning Director shall file the decision with the Director of Environmental Services and shall mail a copy of the decision to the applicant and to other persons who request the same.

(D) A decision by the Planning Director on an SEC permit application shall include written conditions, if any, and findings and conclusions. The conditions, findings, and conclusions shall specifically address the relationships between the proposal and the criteria in MCC .6420.

11.15.6414 Decision by a Hearings Officer

(A) A decision on an SEC permit application for a Conditional Use as specified either in the underlying district or in MCC .7105 through .7640, or for a Community Service use as specified in MCC .7005 through .7030, shall be made by the Hearings Officer in conjunction with the decision on the use proposal associated therewith.

(B) Action by the Hearings Officer on an SEC permit application shall be taken pursuant to MCC .8205 through .8250.

(C) The findings and conclusions made by the Hearings Officer and the conditions or modifications of approval, if any, shall specifically address the relationships between the proposal and the criteria in MCC .6420.

11.15.6416 Appeals

(A) A decision by the Planning Director on an application for an SEC permit may be appealed to the Hearings Officer in the manner provided in MCC .8290 and .8295.

(B) A decision by the Hearings Officer on an application for an SEC permit may be appealed to the Board of County Commissioners in the manner provided in MCC .8255.

11.15.6418 Scope of Conditions

(A) Conditions of approval of an SEC permit, if any, shall be designed to bring the application into conformance with the applicable policies of the Comprehensive Plan. Said conditions may relate to the locations, design, and maintenance of existing and proposed improvements, including but not limit-

ed to buildings, structures and use areas, parking, pedestrian and vehicular circulation and access, natural vegetation and landscaped areas, fencing, screening and buffering, excavations, cuts and fills, signs, graphics, and lighting.

(B) Approval of an SEC permit shall be deemed to authorize associated public utilities, including energy and communication facilities.

11.15.6420 Criteria for Approval of SEC Permit

(A) The maximum possible landscaped area, scenic and aesthetic enhancement, open space or vegetation shall be provided between any use and a river, stream, lake, or floodwater storage area.

(B) Agricultural land and forest land shall be preserved and maintained for farm and forest use.

(C) The harvesting of timber on lands designated SEC shall be conducted in a manner which will insure that natural, scenic, and watershed qualities will be maintained to the greatest extent practicable or will be restored within a brief period of time.

(D) A building, structure, or use shall be located on a lot in a manner which will balance functional considerations and costs with the need to preserve and protect areas of environmental significance.

(E) Recreational needs shall be satisfied by public and private means in a manner consistent with the carrying capacity of the land and with minimum conflict with areas of environmental significance.

(F) The protection of the public safety and of public and private property, especially from vandalism and trespass, shall be provided to the maximum extent practicable.

(G) Significant fish and wildlife habitats shall be protected.

(H) The natural vegetation along rivers, lakes, wetlands and streams shall be protected and enhanced to the maximum extent practicable to assure scenic quality and protection from erosion, and continuous riparian corridors.

[Amended 1990, Ord. 643 § 2]

(I) Archaeological areas shall be preserved for their historic, scientific, and cultural value and protected from vandalism or unauthorized entry. *[Renumbered 1990, Ord. 643 § 2]*

(J) Extraction of aggregates and minerals, the depositing of dredge spoils, and similar activities permitted pursuant to the provisions of MCC .7105 through .7640, shall be conducted in a manner designed to minimize adverse effects on water quality, fish and wildlife, historical or archaeological features, vegetation, erosion, stream flow, visual quality, noise, and safety, and to guarantee necessary reclamation. *[Renumbered 1990, Ord. 643 § 2]*

(K) Areas of annual flooding, floodplains, water areas, and wetlands shall be retained in their natural state to the maximum possible extent to preserve water quality and protect water retention, overflow, and natural functions.

[Renumbered 1990, Ord. 643 § 2]

(L) Significant wetland areas shall be protected as provided in MCC .6422.

[Added 1990, Ord. 643 § 2]

(M) Areas of erosion or potential erosion shall be protected from loss by appropriate means which are compatible with the environmental character.

(N) The quality of the air, water, and land resources and ambient noise levels in areas classified SEC shall be preserved in the development and use of such areas.

(O) The design, bulk, construction materials, color and lighting of buildings, structures and signs shall be compatible with the character and visual quality of areas of significant environmental concern.

(P) An area generally recognized as fragile or endangered plant habitat or which is valued for specific vegetative features, or which has an indentified need for protection of the natural vegetation, shall be retained in a natural state to the maximum extent possible.

(Q) The applicable policies of the Comprehensive Plan shall be satisfied.

11.15.6422 *Significant* Wetlands

Significant wetlands consist of those areas desig-

nated as *Significant* on aerial photographs of a scale of 1"=200' made a part of the supporting documentation of the Comprehensive Framework Plan. Any proposed activity or use requiring an SEC permit which would impact those wetlands shall be subject to the following:

(A) In addition to other SEC Permit submittal requirements, the application shall also include:

(1) A site plan drawn to scale showing the wetland boundary as determined by a documented field survey, the location of all existing and proposed structures, roads, watercourses, drainageways, stormwater facilities, utility installations, and topography of the site at a contour interval of no greater than five feet;

(2) A description and map of the wetland area that will be affected by the proposed activity. This documentation must also include a map of the entire wetland, an assessment of the wetland's functional characteristics and water sources, and a description of the vegetation types and fish and wildlife habitat;

(3) A description and map of soil types in the proposed development area and the locations and specifications for all proposed draining, filling, grading, dredging, and vegetation removal, including the amounts and methods;

(4) A study of any flood hazard, erosion hazard, or other natural hazards in the proposed development area and any proposed protective measures to reduce such hazards;

(5) Detailed Mitigation Plans as described in subsection (D), if required;

(6) Description of how the proposal meets the approval criteria listed in subsection (B) below.

(B) In addition to the criteria listed in MCC .6372, the applicant shall demonstrate that the proposal:

(1) Is water-dependent or requires access to the wetland as a central element of its basic design function, or is not water dependent but has no practicable alternative as described in subsection (C) below;

(2) Will have as few adverse impacts as is practical to the wetland's functional characteristics and its existing contour, vegetation, fish and wildlife resources, shoreline anchoring, flood storage, general hydrological conditions, and visual amenities. This impact determination shall also consider specific site information contained in the adopted wetlands inventory and the economic, social, environmental, and energy (ESEE) analysis made part of the supporting documentation of the comprehensive plan;

(3) Will not cause significant degradation of groundwater or surface-water quality;

(4) Will provide a buffer area of not less than 50 feet between the wetland boundary and upland activities for those portions of regulated activities that need not be conducted in the wetland;

(5) Will provide offsetting replacement wetlands for any loss of existing wetland areas. This Mitigation Plan shall meet the standards of subsection (D).

(C) A finding of no practicable alternative is to be made only after demonstration by the applicant that:

(1) The basic purpose of the project cannot reasonably be accomplished using one or more other practicable alternative sites in Multnomah County that would avoid or result in less adverse impact on a wetland. An *alternative site* is to be considered *practicable* if it is available for purchase and the proposed activity can be conducted on that site after taking into consideration costs, existing technology, infrastructure, and logistics in achieving the overall project purposes;

(2) The basic purpose of the project cannot be accomplished by a reduction in the size, scope, configuration, or density of the project as proposed, or by changing

the design of the project in a way that would avoid or result in fewer adverse effects on the wetland; and

(3) In cases where the applicant has rejected alternatives to the project as proposed due to constraints, a reasonable attempt has been made to remove or accommodate such constraints.

(D) A Mitigation Plan and monitoring program may be approved upon submission of the following:

(1) A site plan and written documentation which contains the applicable information for the replacement wetland as required by MCC .6372 and .6376 (A);

(2) A description of the applicant's coordination efforts to date with the requirements of other local, State, and Federal agencies;

(3) A Mitigation Plan which demonstrates retention of the resource values addressed in MCC .6376 (B)(2);

(4) Documentation that replacement wetlands were considered and rejected according to the following order of locational preferences:

(a) On the site of the impacted wetland, with the same kind of resource;

(b) Off-site, with the same kind of resource;

(c) On-site, with a different kind of resource;

(d) Off-site, with a different kind of resource.

[Added 1990, Ord. 643 § 2]

GOAL 5 Open Spaces, Scenic and Historic Areas and Natural Resource

GOAL: To conserve open space and protect natural and scenic resources.

Programs shall be provided that will: (1) insure open space, (2) protect scenic and historic areas and natural resources for future generations, and (3) promote healthy and visually attractive environments in harmony with the natural landscape character. The location, quality and quanitity of the following resources shall be inventoried:

a. Land needed or desirable for open space;

b. Mineral and aggregate resources;

c. Energy sources;

d. Fish and wildlife areas and habitats;

e. Ecologically and scientifically significant natural areas, including desert areas;

f. Outstanding scenic views and sites;

g. Water areas, wetlands, watersheds and groundwater resources;

h. Wilderness areas;

i. Historic areas, sites, structures and objects;

j. Cultural areas;

k. Potential and approved Oregon recreation trails;

l. Potential and approved federal wild and scenic waterways and state scenic waterways.

Where there is no conflicting uses for such resources have been identified, such resources shall be managed so as to preserve their original character. Where conflicting uses have been identified the economic, social, environmental and energy consequences of the conflicting uses shall be determined and programs developed to achieve the goal.

Cultural Area: refers to an area characterized by evidence of an ethnic, religious or social group with distinctive traits, beliefs and social forms.

Historic Areas: are lands with sites, structures and objects that have local, regional, statewide or national historical significance.

Natural Area: includes land and water that has substantially retained its natural character and land and water that, although altered in character, is important as habitats for plant, animal or marine life, for the study of its natural historical, scientific or paleontological features, or for the appreciation of its natural features.

Open Space: consists of lands used for agricultural or forest uses, and any land areas that would, if preserved and continued in its present use:

a. Conserve and enhance natural or scenic resources;

b. Protect air or streams or water supply;

c. Promote conservation of soils, wetlands, beaches or tidal marshes;

d. Conserve landscaped areas, such as public or private golf courses, that reduce air pollution and enhance the value of abutting or neighboring property;

e. Enhance the value to the public of abutting or neighboring parks, forests, wildlife preserves, nature reservations or sanctuaries or other open space;

f. Promote orderly urban development.

Scenic Areas: are lands that are valued for their aesthetic appearance.

Wilderness Areas: are areas where the earth and its community of life are untrammeled by man, where man himself is a visitor who does not remain. It is an area of undeveloped land retaining its primeval character and influence, without permanent improvement or human habitation, which is protected and managed so as to preserve its natural conditions and which (1) generally appears to have been affected primarily by the forces of nature, with the imprint of man's work substantially unnoticeable; (2) has outstanding opportunities for solitude or a primite and unconfined type of recreation; (3) may also contain ecological, geological, or other features of scientific, educational, scenic or historic value.

Appendix C
Species List

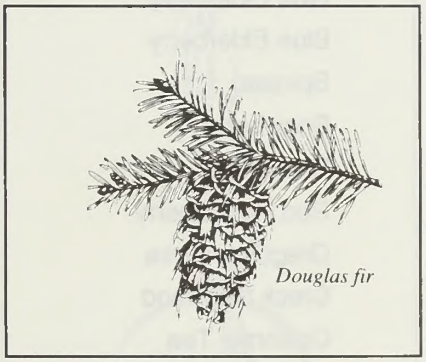
Accipiter striatus **(sharp-shinned Hawk)**
Steve Dowlan

Species List For The Lower Sandy River

Vegetation

Trees

Grand Fir	*Abies grandis*
Douglas Fir	*Pseudotsuga menziesii*
Pacific Yew	*Taxus brevifolius*
Western Redcedar	*Thuja plicata*
Western Hemlock	*Tsuga heterophylla*
Big Leaf Maple	*Acer macrophyllum*
Red Alder	*Alnus rubra*
Pacific Dogwood	*Cornus nuttallii*
California Hazel	*Corylus cornuta var. californica*
Oregon Ash	*Fraxinus latifolia*
Black Cottonwood	*Populus trichocarpa*
	Prunus emarginata
Cascara	*Rhamnus purshiana*
Engelmann Spruce	*Picea engelmannii*
Lodgepole Pine	*Pinus contorta*
Ponderosa Pine	*Pinus ponderosa*



Douglas fir
Jay Miner

Shrubs

Vine Maple	*Acer circinatum*
	Amelanchier alnifolia
Kinnikinnick	*Arctostaphylos uva-ursi*
Tall Oregon Grape	*Berberis aquafolium*
Cascade Oregon Grape	*Berberis nervosa*
Chinquapin	*Catanopsis chrysophilla*
	Cornus stolonifera
	Corylus cornuta var. californica
Salal	*Gaultheria shallon*
Scotch Broom	*Cystisus scorarium*
Scotch Broom	*Cystisus scoparius var. andreanus*
Oceanspray	*Holodiscus discolor*
Orange Honeysuckle	*Lonicera ciliosa*
Indian Plum	*Osmaronia cerasiformis*
	Oemlaria (Osmorhiza) cerasiformis

Mock Orange	*Philadelphus lewisia*
Ninebark	*Physocarpus capitatus*
	Rhus diversiloba
	Ribes sp.
Red Flowering Currant	*Ribes sanguineum*
	Rosa gymnocarpa
Clustered Wild Rose	*Rosa pisocarpa*
Himalayan Blackberry	*Rubus discolor (procerus)*
Cascara	*Rhamnus purshiana*
	Rubus leucodermis
Thimbleberry	*Rubus parviflorus*
Salmonberry	*Rubus spectabilis*
Pacific Blackberry	*Rubus ursinus*
Evergreen Blackberry	*Rubus laciniatus*
River Willow	*Salix fluviatilis*
Willow	*Salix sp.*
Rwe Elderberry	*Sambucus racemosa*
Blue Elderberry	*Sambucus cerulea*
Spiraea	*Spiraea douglasii var. douglasii*
Snowberry	*Symphoricarpos albus var. laevigatus*
Snowberry	*Symphoricarpos albus*
Red Huckleberry	*Vaccinium parvifolium*
Oregon tea-tree	*Ceanothus sanquinus*
Creek Dogwood	*Cornus stolonifera var. occidentalis*
California Tea	*Psoralea physodes*

Ferns

Maidenhair Fern	*Adiantum pedatum*
Maidenhair Spleenwort	*Asplenium trichomanes*
Lady Fern	*Athyrium felix-femina*
Deer Fern	*Blechnum spicant*
Brittle Bladder Fern	*Cystopteris fragilis*
Licorice Fern	*Polypodium glycyrrhiza*
Sword Fern	*Polystichum munitum*
Bracken Fern	*Pteridium aquilinum*
Woodsia	*Woodsia oregana*
Mt. Wood Fern	*Dryopteris austriaca*
Common Horsetail	*Equesetum arvense*
Horsetail	*Equesetum hyemale*

Mosses

Aulocomium sp.
Dicranium strictum
Hylocolepis splendens
Isothecium sp.
Leucolepis menziesii
Mnium insigne
Neckeria menziesii
Polytrichum juniperus
Rhacomitrium canescens
Rhytidiadelphus triquetris
Stokesiella oregana

Herbs

Yarrow	*Achillea millefolium*
Vanilla Leaf	*Achlys triphylla*
Pathfinder	*Adenocaulon bicolor*
Nodding Onion	*Allium cernuum*
Pearly Everlasting	*Anaphalis margaritacea*
Windflower	*Anemone deltoidea*
Lyalls Windflower	*Anenome lyallii*
Towermustard	*Arabis glabra*
Hairy Rockcress	*Arabis hirsuta var. eschscholtziana*
Goatsbeard	*Aruncus sylvester*
Wild Ginger	*Asarum caudatum*
Red Columbine	*Aquilegia formosa*
Wintercress	*Barbarea orthoceris*
Northern Saitas	*Brodiaea congesta*
Calypso Orchid	*Calypso bulbosa*
Bellflower	*Campanula scouleri*
	Cardamine oligosperma
	Cardamine pulcherrima
Bittercress	*Cardamine pennsylvania*
Mouse-eared Chickweed	*Cerastium vulgatum*
Little Pipsissewa	*Chimaphila menziesii*
Prince's Pine	*Chimpahila umbellata*
Oregon Goldaster	*Chrysopis oregana*
Ox-eye Daisy	*Chrysanthemum leucanthemum*
Tall Bugbane	*Cimicifuga elata*
Thistle	*Cirsium arvense*
Beadlily	*Clintonia uniflora*
Pacific Coral Root	*Corallorhiza maculata*

Calypso bulbosa
(Calypso Orchid)

Corydalis	*Corydalis scouleri*
Queen Anne's Lace	*Daucus carota*
Larkspur	*Delphinium menziesii var. pyramidale*
Bleeding Heart	*Dicentra formosa*
Foxglove	*Digitalis purpurea*
Large Field Fairy Bells	*Disporum smithii*
Grass Pink	*Dianthus armeria*
Common Horsetail	*Equisetum arvense*
Horsetail	*Equisetum hyemale*
Philadelphia Daisy	*Erigeron philadelphicus*
Wallflower	*Erysimum asperum*
Fawn Lily	*Erythronium oregonum*
Wood Strawberry	*Fragaria vesca var. bracteata*
Broadpetal Strawberry	*Fragaria virginiana var. platypetala*
	Galium aparine
Fragrant Bedstraw	*Galium trifolium*
Oregon bedstraw	*Galium oreganum*
	Geum macrophyllum
Creeping Charlie	*Glecoma hederacea*
Rattlesnake Orchid	*Goodyera oblongifolia*
Wild Forget-Me-Not	*Hackelia sp.*
Cow Parsnip	*Heracleum lanatum*
Damask Violet	*Hesperis matronalis*
Alumroot	*Heuchera micrantha var. micrantha*
White Flowered Hawkweed	*Hieracium albiflorum*
Pacific Waterleaf	*Hydrophyllum tenuipes*
	Hypericum formosum var. scouleri
Bog St. John's-wort	*Hypericum anagalloides*
Common St. John's-wort	*Hypericum perforatum*
Oregon Iris	*Iris tenax*
Sweet Pea	*Lathyrus torreyi*
Tiger Lily	*Lilium columbianum*
Twinflower	*Linnaea borealis*
Deer Vetch	*Lotus corniculatus*
Big Deervetch	*Lotus crassifolius var. subglaber*
Small-flowered Deervetch	*Lotus micranthus*
Streambank Lupine	*Lupinus rivularis*
Rose Campion	*Lychnis coronaria*
Cut Leaved Water Horehound	*Lycopus americanum*
Skunk Cabbage	*Lysichitum americanum*
False Lily-of-the-Valley	*Maianthemum dilatatum*
Old Man-in-the-Ground	*Marah oreganus*
Medic	*Medicago*

Erythronium oregonum
(Fawn Lily)

Field Mint	*Menthe arvense*
Peppermint	*Menthe piperita*
Yellow Monkey Flower	*Mimulus guttatus var. guttatus*
Great Purple Monkey Flower	*Mimulus lewisii*
Musk-flower	*Mimulus moschatus var. sessilifolius*
Bishops Cap	*Mitella caulescens*
Indian Pipe	*Monotropa uniflora*
Candyflower	*Montia sibirica*
Narrow Leaved Montia	*Montia linearis*
Miner's Lettuce	*Montia parviflora var. parviflora*
Miners Lettuce	*Montia perfoliata*
Nemophila	*Nemophila parviflora*
Water-Parsley	*Oenanthe sarmentosa*
Mt. Sweet Cicely	*Osmorhiza chilensis*
Oregon Oxalis	*Oxalis oregana*
Great Oxalis	*Oxalis trilliifolia*
Yellow Oxalis	*Oxalis suksdorfii*
	Pedicularis racemosa
Coltsfoot	*Petasites frigidus var. palmatus*
Woodland Phacelia	*Phacelia nemoralis*
English Plantain	*Plantago lanceolata*
Common Plantain	*Plantago major var. major*
Self Heal	*Prunella vulgaris*
Buttercup	*Ranunculus repens*
Buttercup	*Ranunculus occidentalis*
Watercress	*Rorippa nasturtium aquaticum*
Wild Rose	*Rosa nutkana var. nutkana*
Red Sorrel	*Rumex acetosella*
	Rumex occidentalis
Western Dock	*Rumex occidentalis var. procerus*
Yerba Buena	*Satureja douglasii*
Spatula Leaf Stonecrop	*Sedum spathufolium*
Tansy Ragweed	*Senecio jacobaea*
Bladder Campion	*Silene cucubaris*
False Soloman's Seal	*Smilacina racemosa*
Sm. False Soloman's Seal	*Smilacina stellata*
Climbing Nightshade	*Solanum clulcamera*

Meadow Goldenrod	*Solidago canadensis var. salebrosa*
Ladies Tresses	*Spiranthes romanzoffiana var. romanzoffiana*
Great Betony	*Stachus cooleyae*
Mexican Betony	*Stachys mexicana*
Longstaff Starwort	*Stellaria longipes*
Common Chickweed	*Stellaria media*
Twisted Stalk	*Steptopus amplexifolius var. amplexifolius*
	Synthris reniformis
Fringecup	*Tellima grandiflora*
Meadowrue	*Thalictrum occidentale*
Coolwort	*Tiarella trifoliata var. trifoliata*
Shepherd's Purse	*Toesdalia nudicaulis*
Youth on Age	*Tolmiea menziesii*
Starflower	*Trientalis latifolia*
White Trillium	*Trillium ovatum*
Giant Trillium	*Trillium cholorpetalum*
Stinging Nettle	*Urtica dioica*
Stinging Nettle	*Urtica dioica var. lyallii*
Inside Out Flower	*Vancouveria hexandra*
Stream Violet	*Viola glabella*

Lichens

Alectoria sarmentosa
Alectoria americana
Alectoria fremontii
Buellia penichra
Caloplaca oregona
Cavernularia lophyrea
Cetrelia chicitae
C. chlorophylla
C. orbata
C. cf. coralligera
Cladonia bacillaris
C. chlorophaea
C. cf. coniocraea
C. cornuta
C. fimbriata

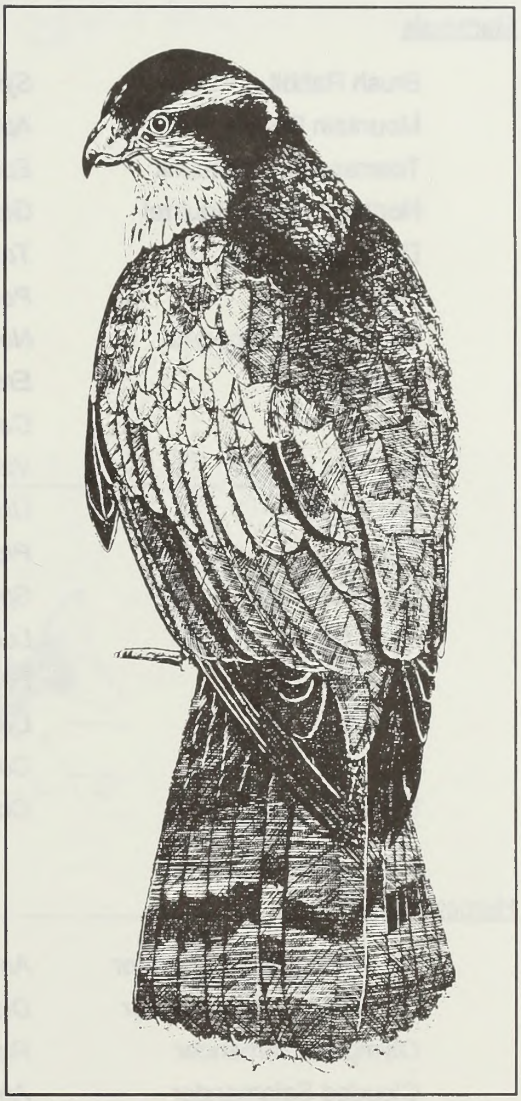
C. furcata
C. gracilis
C. macilenta
C. nemoxyna
C. ochrochlora
C. phyllophora
C. pleurota
C. polydacatyla
C. pyxidata
C. subsquamos
C. transcendens
Evernia prunastri
Graphis scripta
Hypogymnia enteromorpha
Hypogymnia physodes
Hypogymnia tubulosa
Lecanora candelaris
Lecanora pacifica
Lepraria membranacea
Leptogium palmatum
Leptogium sinatum
Lobaria oregana
Lobaria pulmonaria
Menegazzia terebrata
Nephroma laevigatum
Nephroma resupinatum
Orchrolechia parella
Permelia arnoldii
P. exasperatula
P. pseudosulcata
P. saxatilis
P. subaurifera
P. sinuosa
P. sulcata
Parmotrema perlata (Parnelia)
Pelitgera aphthosa
P. canina
P. collina
P. polydactyla
P. spurina
P. venosa
Ochrolechia yasudae
Pertusaria sp. (unnamed)
Rinodina archaea
Pertusaria amara
Physcia adscendens
Physcia aipolia
Physcia setosa
Platismatia glauca
Platismatia herrei
Ramalina farinacea
Ramalina inflata
Ramalina species (minute)
Sphaerophorus globosus
Squamules
Sticta fuliginosa
Thelotrema lepadinum
Usnea dasypoga
U. hirta
U. longissima
U. subfloridana
U. species (minute)
Xanthoria candelaria
Xanthoria polycarpa
Cladina rangiferina
Cladonia verticillata
Cladonia cf. turgida
Hypogymnia vittata
Leptogium hirsutum
Letharia vulpina
Lecanora sp.
Lepraria species (unnamed)

Wildlife

Birds

Great Blue Heron	*Ardea herodias*
Green-backed Heron	*Butorides virescens*
Canada Goose	*Branta canadensis*
Mallard	*Anas platyrhynchos*
Northern Shoveler	*Anas clypeata*
Wood Duck	*Aix sponsa*
Green-winged Teal	*Anas carolinensis*
Ring-necked Duck	*Aythya collaris*
Harlequin Duck	*Histrionicus histrionicus*
Common Merganser	*Mergus merganser*
Greater Yellowlegs	*Tringa melanoleuca*
Lesser Yellowlegs	*Tringa flavipes*
Spotted Sandpiper	*Actitis macularia*
Ring-billed Gull	*Larus delawarensis*
California Gull	*Larus californicus*
Glaucous-winged Gull	*Larus glaucescens*
Turkey Vulture	*Cathartes aura*
Cooper's Hawk	*Accipiter cooperii*
Sharp-shinned Hawk	*Accipiter striatus*
Red-tailed Hawk	*Buteo jamaicensis*
Bald Eagle	*Haliaeetus leucocephalus*
Osprey	*Pandion haliaetus*
Peregrine Falcon	*Falco peregrinus*
Ruffed Grouse	*Bonasa umbellus*
Mountain Quail	*Oreortyx pictus*
Band-tailed Pigeon	*Columba fasciata*
Mourning Dove	*Zenaida macroura*
Great Horned Owl	*Bubo virginianus*
Western Screech-owl	*Otus asio*
Northern Pygmy-owl	*Glaudicium gnoma*
Common Nighthawk	*Chordeiles minor*
Vaux's Swift	*Chaetura vauxi*
Rufous Hummingbird	*Selasphorus rufus*
Belted Kingfisher	*Megaceryle alcyon*
Northern Flicker	*Colaptes auratus*
Red-breasted Sapsucker	*Sphyrapicus ruber*
Hairy Woodpecker	*Picoides villosus*
Downy Woodpecker	*Picoides pubescens*

Pileated Woodpecker	*Dryocopus pileatus*
Olive-sided Flycatcher	*Contopus borealis*
Western Wood Pewee	*Contopus sordidulus*
Willow Flycatcher	*Empidonax traillii*
Pacific-slope Flycatcher	*Empidonax difficilis*
Tree Swallow	*Tachycineta bicolor*
Violet-green Swallow	*Hirundo cyaneoviridis*
Barn Swallow	*Hirundo rustica*
Rough-winged Swallow	*Stelgidopteryx ruficollis*
Cliff Swallow	*Petrochelidon pyrrhonota*
Steller's Jay	*Cyanocitta stelleri*
Scrub Jay	*Aphelocoma coerulescens*
American Crow	*Corvus brachyrhynchos*
Black-capped Chickadee	*Parus atricapillus*
Chestnut-backed Chickadee	*Parus rufescens*
Brown Creeper	*Certhia familiaris*
Red-breasted Nuthatch	*Sitta carolinensis*
House Wren	*Troglodytes aedon*
Winter Wren	*Troglodytes troglodytes*
Bewick's Wren	*Thryomanes bewickii*
Golden-crowned Kinglet	*Regulus satrapa*
Swainson's Thrush	*Catharus ustulata*
American Robin	*Turdus migratorius*
American Dipper	*Cinclus mexicanus*
Cedar Waxwing	*Bombycilla cedrorum*
Hutton's Vireo	*Vireo huttoni*
Red-eyed Vireo	*V. olivaceus*
Warbling Vireo	*V. gilvus*
Nashville Warbler	*Vermivora ruficapilla*
Orange-crowned Warbler	*Vermivora celata*
Black-throated Gray Warbler	*Dendroica nigrescens*
Townsend's Warbler	*Dendroica townsendi*
Hermit Warbler	*Dendroica occidentalis*
McGillivray's Warbler	*Oporornis tolmiei*
Wilson's Warbler	*Wilsonia pusilla*
Common Yellowthroat	*Geothylpis trichas*
Black-headed Grosbeak	*Pheucticus melanocephalus*
Rufous-sided Towhee	*Pipilo erythrophthalmus*
Song Sparrow	*Melospiza melodia*
Dark-eyed Junco	*Junco hyemalis*
White-crowned Sparrow	*Zonotrichia leucophrys*
Lincoln's Sparrow	*Melospiza lincolnii*
Brown-headed Cowbird	*Molothrus ater*

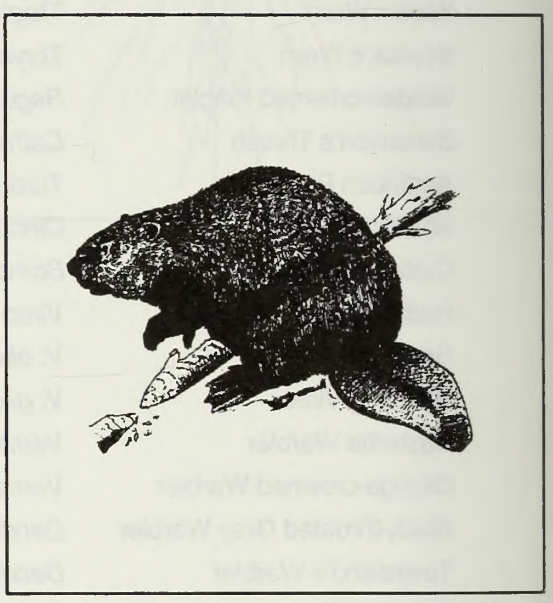


Accipiter gentilis
(Goshawk)
Steve Dowlan

Northern Oriole	*Icterus galbula*
Western Tanager	*Piranga ludoviciana*
American Goldfinch	*Carduelis tristis*
Red Crossbill	*Loxia curvirostra*
Evening Grosbeak	*Coccothraustes vespertinus*

Mammals

Brush Rabbit	*Sylvilagus bachmani*
Mountain Beaver	*Aplodontia rufa*
Townsend's Chipmunk	*Eutamias townsendi*
Northern Flying Squirrel	*Glaucomys sabrinus*
Douglas' Squirrel	*Tamiasciurus douglasi*
Deer Mouse	*Peromyscus maniculatus*
Bushy-tailed Woodrat	*Neotoma cinerea*
Porcupine	*Erethizon dorsatum*
Coyote	*Canis latrans*
Red Fox	*Vulpes vulpes*
Black Bear	*Ursus americanus*
Raccoon	*Procyon lotor*
Spotted Skunk	*Spilogale putorius*
River Otter	*Lontra canadensis*
Mountain Lion	*Felis concolor*
Bobcat	*Lynx rufus*
Elk	*Cervus elaphus*
Blacktail Deer	*Odocoileus hemionus*



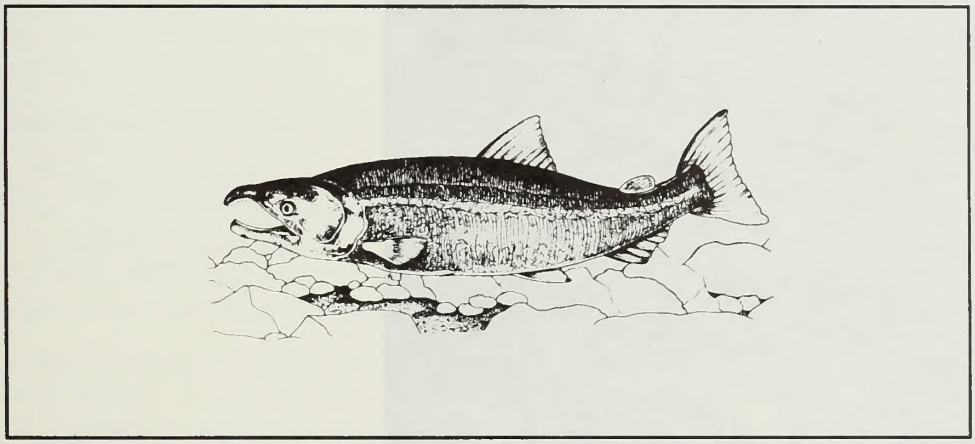
Herpetofauna

Northwestern Salamander	*Ambystoma gracile*
Pacific Giant Salamander	*Dicamptodon ensatus*
Olympic Salamander	*Rhyacotriton olympicus*
Clouded Salamander	*Aneides flavipunctatus*
Oregon Slender Salamander	*Batrachoseps wrighti*
Oregon Ensatina	*Ensatina oregonensis*
Red-backed Salamander	*Plethodon vehiculum*
Rough-skinned Newt	*Taricha granulosa*
Western Toad	*Bufo boreas*
Pacific Treefrog	*Hyla regilla*
Red-legged Frog	*Rana aurora*
Northern Alligator Lizard	*Gerrhonotus coeruleus*
Rubber Boa	*Charina bottae*
Western Yellow-bellied Racer	*Coluber constrictor mormon*
Red-spotted Garter Snake	*Thamnophis sirtalis concinnus*

Fish

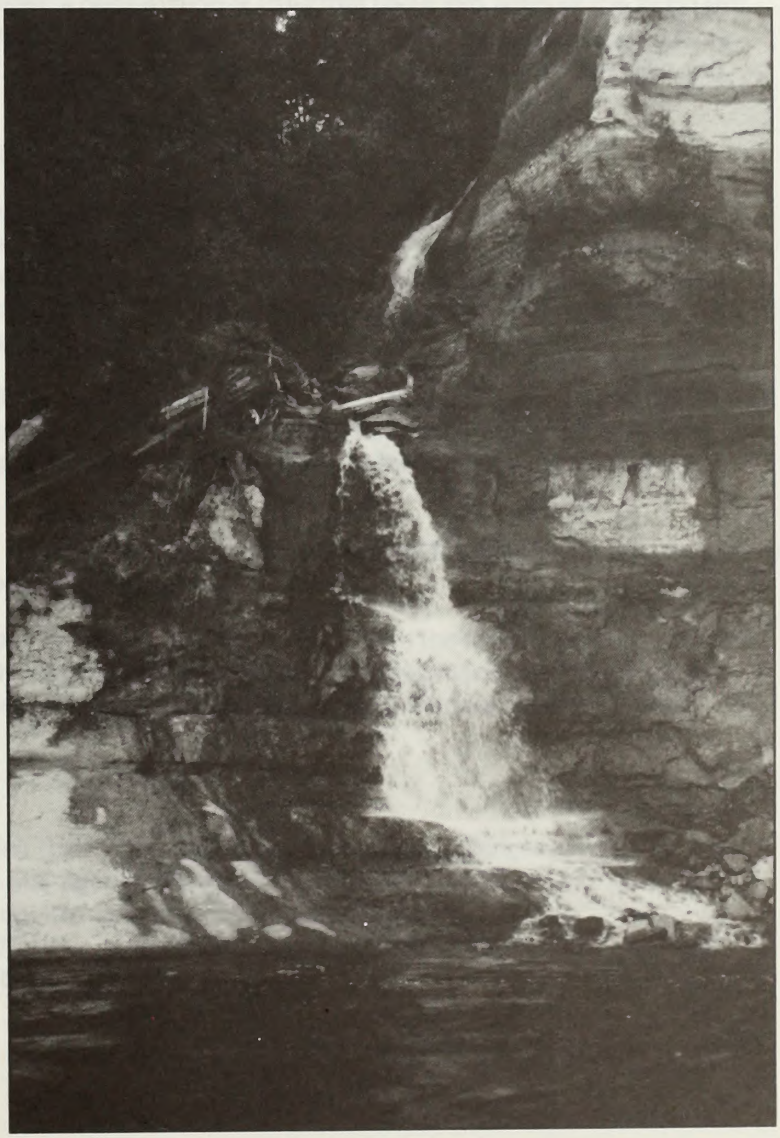
The following is a list of fish species known or believed to be present by the Oregon State Fish and Game Commission.

Pacific Lamprey	*Entosphenus tridentatus*
Sea Run Cutthroat Trout	*Oncorhynchus clarki clarki*
Steelhead Trout	*O. mykiss*
Coho Salmon	*O. kisutch*
Chinook Salmon	*O. tshawytscha*
Sucker spp.	*Catostomus spp.*
Northern Chiselmouth	*Acrchellus alutaceus*
Northern Squawfish	*Ptychocheilus oregonensis*
Dace	*Rhinichthys spp.*
Carp	*Cyprinus carpio*
Sculpin spp.	*Cottus spp.*
Columbia River Smelt	*Thaleichthys pacificus*



Jay Miner

Appendix D
List of Contributing Agencies and Organizations



Appendix D
List of Contributing Agencies and Organizations

Federal, State, and Local Governmental Agencies
and Private Organizations
contributing to the

Sandy Wild and Scenic River Management Plan

1992
Federal Agencies

Bureau of Land Management: The lead agency for this project.

The mission of the Bureau of Land Management (BLM) is the responsibility for the balanced management of the Public lands and resources and their various values so that they are considered in a combination that will best serve the needs of the people of the United States of America. Management is based on the principles of multiple-use and sustained yield; a combination of uses that takes into account the long term needs of future generations for renewable and non-renewable resources. These resources include recreation, range, timber, minerals, watershed, fish and wildlife, wilderness and natural, scenic, scientific and cultural values.

United States Department of Agriculture Forest Service

The United States Department of Agriculture (USDA) Forest Service administers the National Forest System lands. The Forest Service is responsible for the administration of the upper portion of the Sandy River and will take the lead for that segment of the river through the development of a separate management plan. The Forest Service will work closely with Clackamas and Multnomah Counties and other state agencies that have jurisdiction around the Sandy River.

The Mount Hood National Forest will be the primary public contact for issues relating to wild and scenic river management. Some of the issues include: safety, public information and education, special use permit compliance, resource protection, project planning and implementation, monitoring of social and physical conditions, etc.

The federal government has no authority regulating private lands in or around the wild and scenic river boundaries. Land use is the concern of local and state government.

The Wild and Scenic River Act (W&SR) prohibits the use of condemnation in the fee title purchase of lands if 50 percent or more of the land is already in public ownership. The act does provide the federal government to 1) purchase land from willing sellers, 2) enter land exchanges, or 3) acquire scenic easement agreements, if necessary.

United States Fish and Wildlife Service

The United States Fish and Wildlife Service (USFWS) administers the federal Endangered Species Act of 1973 (as amended). The Bureau of Land Management consults with USFWS to obtain a biological opinion on appropriate courses of action when a determination has been made that a threatened or endangered species, or a critical habitat may be affected by a proposed management action. A decision could mean the proposed action is modified or abandoned.

State Agencies

Department of Agriculture

The Department of Agriculture has the authority to work towards long-term planning for agricultural resources. This authority allows the department to assure adequate water supplies for all phases of agricultural resources. The department is assisted by the Soil and Water Conservation Division, the Soil and Water Conservation Commission, and 45 Soil and Water Conservation Districts (one per county) around the state.

Department of Environmental Quality

The Department of Environmental Quality (DEQ) regulates and guards against the deterioration of air and water quality in the state of Oregon. DEQ implements the Statewide Water Quality Management Plan. The plan establishes standards of water quality for each of the Oregon Water Resources Department's 18 river basins. Beneficial uses of rivers and streams that are protected by DEQ are:

- aesthetic quality
- anadromous fish passage
- boating
- fishing and hunting
- industrial water supplies
- irrigation
- livestock watering
- private
- public
- resident fish and aquatic life
- salmonid rearing and spawning
- water contact recreation
- wildlife

The standards set for water quality are to maintain the highest possible levels of dissolved oxygen and the lowest possible levels for temperature, bacteria, dissolved chemicals, and toxic materials. The DEQ antidegradation policy states that high quality waters would be protected from degradation, unless the Environmental Quality Commission, based on economic or social needs, finds it necessary to make an exception. DEQ also sets standards and procedures for on-site sewage systems, issues permits for dredge and fill of wetlands, and maintains water quality monitoring stations throughout Oregon. Any person proposing an action with a potential impact to water quality or that would create wastes that would flow into public waters must first obtain a permit from DEQ.

Department of Geology and Mineral Industries

The Department of Geology and Mineral Industries (DOGAMI) has no authority over sites within the beds and banks of rivers. DOGAMI's role in developing a wild and scenic river would be in designating past mining sites and indicating current activity in the area.

Department of Land Conservation and Development

The Department of Land Conservation and Development (DLCD), along with the guidance and authority of the Oregon Land Conservation and Development Commission (LCDC) works with cities, counties, and state agencies to develop and maintain Oregon's comprehensive land use plans and regulations. As part of these responsibilities, DLCD ensures that cities, counties, and state agencies have included scenic waterways in their Goal 5 planning pertaining to natural resources. Goal 5 planning requires comprehensive plans that will 1) ensure open space, 2) protect scenic and historical areas and natural resources, and 3) promote healthy and visually attractive environments. In Goal 5 planning, cities, counties, and state agencies must inventory the resource, identify conflicting uses which could impact the resource, and develop implementation strategies to resolve conflicting uses. They must notify State Parks and Recreation Department of proposed changes in land use within scenic waterway corridors. Counties are required to protect identified resources through mandatory plans, policies, and zoning requirements.

Division of State Lands

The Division of State Lands (DSL) is the administrative arm of the State Land Board (the Governor, Secretary of State, and State Treasurer). Under constitutional and statutory guidelines, the Board is responsible for managing the assets of the Common School Funds as well as for administering the Oregon Removal-Fill Law. The School Fund's assets include the river beds and banks of Oregon's navigable waterways, and are managed for the "greatest benefit for the people of this state consistent with the conservation of this resource under sound technique of land management."

DSL is responsible for protecting and conserving the beds and banks of scenic waterways. Any alteration to the bed or banks of a scenic river requires approval by the Land Board and a permit issued by the DSL. DSL works closely with the State Parks and Recreation Department to ensure that any changes to the bed or banks of a scenic river are consistent with the scenic waterway management plan.

Oregon Department of Fish and Wildlife

The Oregon Department of Fish and Wildlife (ODFW) manages fish and wildlife resources in the state, regulates all commercial and recreational harvests of fish and game, and coordinates with other agencies regarding habitat preservation. ODFW is authorized to request instream water rights to protect fish and wildlife resources. ODFW technicians and biologists provide technical assistance, to other agencies, for riparian habitat protection and maintenance, river bed and bank alterations, water withdrawal, and any use of the water's surface. ODFW surveys many game and non-game species. The statistics may be used to determine habitat needs.

Oregon Department of Forestry

The Oregon Department of Forestry (ODF) manages state-owned forests and enforces the Forest Practices Act. The Forest Practices Act protects water quality, soil, fish, and wildlife from adverse impacts from forest activities. The Forest Practices Act regulates reforestation, road construction and maintenance, harvesting, chemical application, and disposal of slash. An ODF permit is required for logging and other forest activities.

The Forest Practices Act lacks special requirements for operations within scenic waterway corridors. They do, however, have rules to protect riparian management areas. Riparian management areas include the riparian area and the riparian area of influence. Under these rules, a proposed commercial forest operation within the riparian management area of a Class 1 stream must be described in a written plan. The plan includes any operation within 100 feet of a class 1 stream. The plan must describe how the operation will meet minimum standards determined by the Forest Practices Act, and then be submitted to ODF for approval. In these sensitive areas, close coordination is required. ODF directive 6-1-0-002 outlines specific procedures for coordinating the Forest Practice program and the Oregon Scenic Waterways program for operations in a scenic waterway corridor. The goal of coordination is keeping all the parties informed, of the responsibilities, requirements, and planned activities, so that the process is efficient and effective.

Oregon State Parks and Recreation Department

The Oregon State Parks and Recreation Department, under the authority of the Oregon State Parks Commission (Oregon Revised Statute (ORS) 390.805 to ORS 390-925) is responsible for the purchase, improvement, maintenance, and operation of Oregon's state park system.

Additional responsibilities are supplying technical assistance to local governments concerning park matters, developing and maintaining the Statewide Comprehensive Outdoor Recreation Plan (SCORP), administering the Federal Land and Water Conservation Fund matching grant program in Oregon, and administrating the Oregon Scenic Waterway Program (OSWP).

OSWP is operated through a notification and review process. The general guidelines for OSWP are Oregon Administrative Rules (OAR) 736-40-005 to 736-40-095. Specific guidelines have been devised for this segment of the Sandy River as they are for all river segments.

The Scenic Waterways Act and the Oregon State Parks and Recreation Commission's rules require the evaluation of land use changes and development proposals within _ mile from each side of the river. Land use changes and development proposals must be evaluated for their potential impacts on aesthetic and

scenic values, considering the river. Property owners who want to build roads or houses, develop mines, harvest timber or begin with similar projects, must provide written notification to the Oregon Parks and Recreation Department before beginning the project. The Department's evaluation of the project will be coordinated with the local, state, and federal natural resource agency that has regulatory responsibilities. The State Parks and Recreation Department will determine if the project or development is compatible with the scenic waterway within the Department's river classification administrative rules. The landowner may begin the project upon written approval of the Department. The Department, and the Commission if necessary, will work with the landowner to reach a settlement of any conflicts. When an agreement cannot be reached within one year of the original notification, the Commission must either pay the property owner for the land, or the development rights, or allow the project to proceed. The administrative rules process and the Sandy River rules are attached in Appendix A.

The State Parks work closely with Federal agencies such as the United States Forest Service, and the Bureau of Land Management to ensure their actions are compatible with scenic waterway laws, rules, and resource management recommendations. In addition to working with federal agencies, the state Parks Department works closely with county planning staff and other State agencies to ensure development on private lands is compatible with the river environment.

Oregon Water Resources Department

Oregon Water Resources Department (OWRD) is responsible for the management and distribution of the state's water resources. The Water Resources Commission, a seven-member panel appointed by the Governor, develops policy through the preparation of river basin plans for each of Oregon's 18 river basins. The Commission uses river basin plans to classify stream flow for domestic, municipal, recreation, industry, irrigation, and other uses. The plans, which reflect how water is currently used, and its future use and distribution, are adopted as administrative rules.

OWRD issues water rights on all waters in the state and enforces the exclusion of dams, impoundments, and placer mining in scenic waterways, and on tributary streams within scenic waterway boundaries. The Scenic Waterways Act requires the Water Resources Commission to review proposed land condemnations, and to review scenic waterway management plans and additions proposed by State Parks and Recreation Department for designation by the governor. The Water Resources Commission must assure that any adverse effects to fish, wildlife, and recreation are not created by a water right in or above a scenic waterway.

Minimum perennial stream-flows are administrative designations established by the Water Resources Commission. A law passed in 1987 by the Legislature allows for the conversion of minimum perennial stream-flows to instream water rights. Three State departments may apply for these instream rights: Oregon State Parks and Recreation Department, Oregon Department of Fish and Wildlife, and the Department of Environmental Quality. Once granted, the instream right is held by OWRD in trust for the people of Oregon.

Oregon Department of Transportation - Highway Division

The Oregon Department of Transportation (ODOT) is responsible for planning, designing, re-constructing, posting signs, maintenance of the State highways for public safety, and the management of motor vehicle use. The state highway that passes through the Sandy Wild and Scenic corridor is Crown Point Highway.

A Memorandum of Understanding, approved by the State Highway Engineer and Regional Forester for the Pacific Northwest Region Forest Service, provides the basis for coordinating issues related to state highways through National Forest lands. ODOT lacks special requirements for highways within State scenic waterways. However, ODOT must prepare a section 4(f) evaluation under the Federal-Aid Highway Act of 1968 for any federally funded highway project which requires the use of any publicly owned land used as a recreation area beyond the existing highway improvement. Since the Sandy Wild and Scenic River is classified as a recreation river, the 4(f) requirement applies to the Sandy Wild and Scenic River corridor.

State Historic Preservation Office

The State Historic Preservation Office (SHPO) was created by the National Historic Preservation Act of 1966. Among SHPO's many roles, is the evaluation of cultural property in consultation with federal agencies

or public nominations, to determine if the property qualifies for listing on the National Register of Historic Places. Properties that qualify for listing are protected according to the type and nature of the property.

State Marine Board

The State Marine Board registers motorized watercraft, establishes equipment and operating requirements for the safety of the environment, regulates the use of boats on Oregon waters, and provides training for county sheriffs and state police officers who patrol the waters. State Marine Board regulations prohibit motorized craft on the Sandy upstream of the Stark Street Bridge.

In accordance with OAR 250-30-030, permit systems for commercial and non-commercial boating activities can be established by the Board for both state scenic waterways and federal wild and scenic rivers. Outdoor guides and outfitters must register with the Board.

Local or Regional Governments, Agencies and Private Organizations

Local Governments

The local govemments involved with Sandy River Scenic Waterway are Clackamas County and Multnomah County. The counties must include the scenic waterway in their comprehensive land use planning and zoning under Goal 5 (natural resources). The counties must also provide law enforcement and search and rescue.

Northwest Power Planning Council

The Northwest Power Planning Council (NPPC) was authorized by the Northwest Power Act of 1980. Four states (Idaho, Montana, Oregon, and Washington) make up the Northwest Power Planning Council. The council consists of two persons from each state whose job is to: (1) develop a reliable and economical 20-year electrical power plan (2) protect and re-build fish and wildlife populations, and (3) involve the public in the decision-making process. The council works with a variety of local, state, and federal agencies, as well as with concemed environmental groups and individuals, to strike a balance between the needs of electrical power and the survival of the fish and wildlife.

Portland General Electric

Portland General Electric (PGE) provides electrical power to approximately 40 % of Oregon's residents. Part of the source of the electrical power comes from the operation of the Marmot Diversion Dam on the Upper Sandy River. The diversion dam diverts water to Roslyn Lake and the Bull Run Powerhouse which creates the electricity.

PGE coordinates water flows on the Sandy River with the Oregon Department of Fish and Wildlife (ODFW) to maintain minimum flow levels required for fisheries management systems which ODFW oversee. PGE also coordinates water flow levels with the Portland Water Bureau to maintain the needs of the city depending on the time of year.

Portland Water Bureau

The Portland Water Bureau (PWB) oversees the water needs of the city of Portland. The quality of water is a major concem of the Bureau. Water turbidity standards are established to ensure quality. Several testing sites along the Sandy River are used to detect turbidity levels in the water. Bank stability is also monitored due to the changes in water flow levels. Water flow levels are coordinated with Portland General Electric to maintain adequate amounts during both high and low usage times.

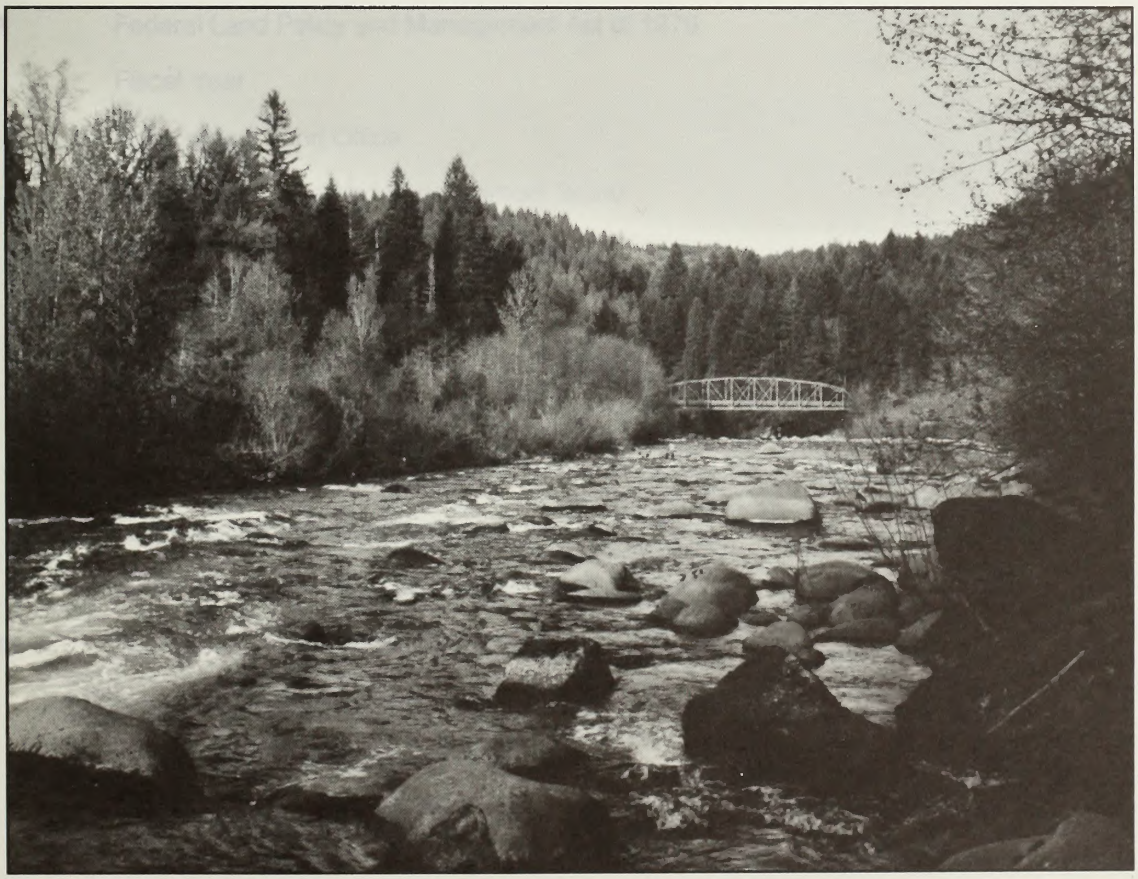
The Portland Water Bureau (PWB) oversees the water needs of the city of Portland. The quality of water is a major concern of the bureau. The quality of the water is ensured by water turbidity standards. Several testing sites along the Sandy River are used to detect turbidity levels in the water.

Water flow levels are coordinated with Portland General Electric to maintain suitable amounts during both high and low usage times. Due to the changes in water flow levels, bank stability is also monitored.

The Nature Conservancy

The Nature Conservancy is an international membership organization committed to the global preservation of natural diversity. The Conservancy's mission is to find, protect, and maintain the best examples of communities, ecosystems, and endangered species in the natural world. Since incorporation in 1951, the Conservancy has protected five and a half million acres throughout the United States, Canada, and Latin America. In Oregon, The Conservancy manages 49 preserves totalling over 40,000 acres. Approximately 450 acres are within the Sandy Wild and Scenic corridor.

Appendix E
Acronym List



Acronyms

ACEC	Area of Critical Environmental Concern
BLM	Bureau of Land Management
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
CFS	Cubic Feet per Second
DEQ	Department of Environmental Quality
DEIS	Draft Environmental Impact Statement
DEQ	Department of Environmental Quality
DLCD	Department of Land Conservation and Development
DSL	Division of State Lands
EA	Environmental Assessment
EIS	Environmental Impact Statement
ETS	Endangered, Threatened, or Sensitive species
EPA	Environmental Protection Agency
FEIS	Final Environmental Impact Statement
FERC	Federal Energy Regulatory Commission
FLPMA	Federal Land Policy and Management Act of 1976
FY	Fiscal Year
GLO	Government Land Office
GWEB	Governor's Watershed Enhancement Board
IFIM	Instream Flow Incremental Methodology
LAC	Limits of Acceptable Change
LCDC	Land Conservation Development Commission
MFP	Management Framework Plan
MOU	Memorandum of Understanding
NEPA	National Environmental Protection Act
NPPC	Northwest Power Planning Council
NWSRS	National Wild and Scenic Rivers System
NRHP	National Register of Historic Places
O&C	Oregon and California Act of 1937
OAR	Oregon Administrative Rules

ODF	Oregon Department of Forestry
ODFW	Oregon Department of Fish and Wildlife
ODOT	Oregon Department of Transportation
ODSL	Oregon Division of State Lands
OFPA	Oregon Forest Practices Act
OHV	Off-Highway Vehicle
ORS	Outstanding Natural Area
ONHP	Oregon National Heritage Plan
OPRD	Oregon Parks and Recreation Department
ORS	Oregon Revised Statutes
ORV	Off-Road Vehicle
OSMB	Oregon State Marine Board
OSU	Oregon State University
OWRD	Oregon Water Resources Department
PGE	Portland General Electric
PWB	Portland Water Bureau
RM	River Mile
RMP	Resource Management Plan
RNA	Research Natural Area
ROD	Record of Decision
SCORP	Statewide Comprehensive Outdoor Recreation Plan
SCS	Soil Conservation Service
SEC	Specialized Environmental Concern
SHPO	State Historical Preservation Office
TNC	The Nature Conservancy
USC	United States Code
USFS	United States Forest Service
USFWS	United States Fish & Wildlife Service
USDA	United States Department of Agriculture
USDI	United States Department of Interior
USGS	United States Geological Survey
WSA	Wilderness Study Area
WSRA	Wild and Scenic Rivers Act

Appendix F
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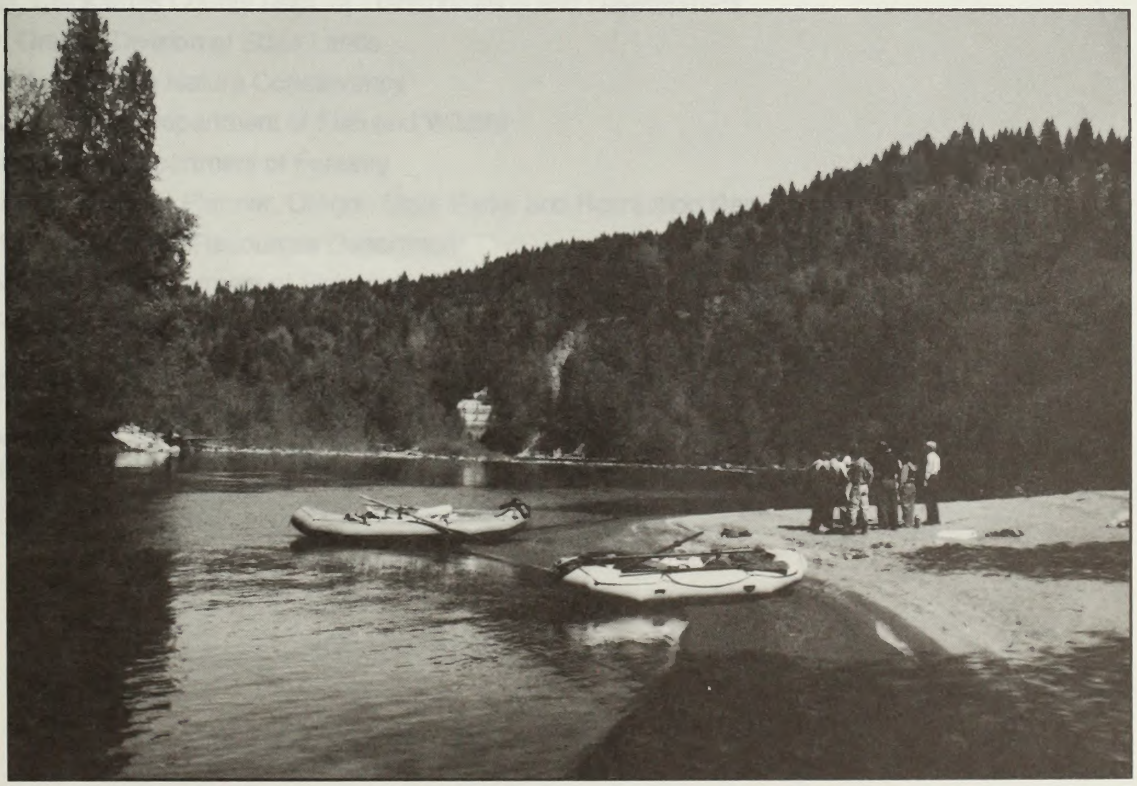

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